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PUB-NO: JP408113784A
DOCUMENT-IDENTIFIER: JP 08113784 A
TITLE: IMPROVER FOR LIQUID CRYSTAL CHARACTERISTIC

PUBN-DATE: May 7, 1996

INVENTOR-INFORMATION:
NAME COUNTRY
OKABE, NOBUHIRO
HASHIMOTO, SHIGEJI

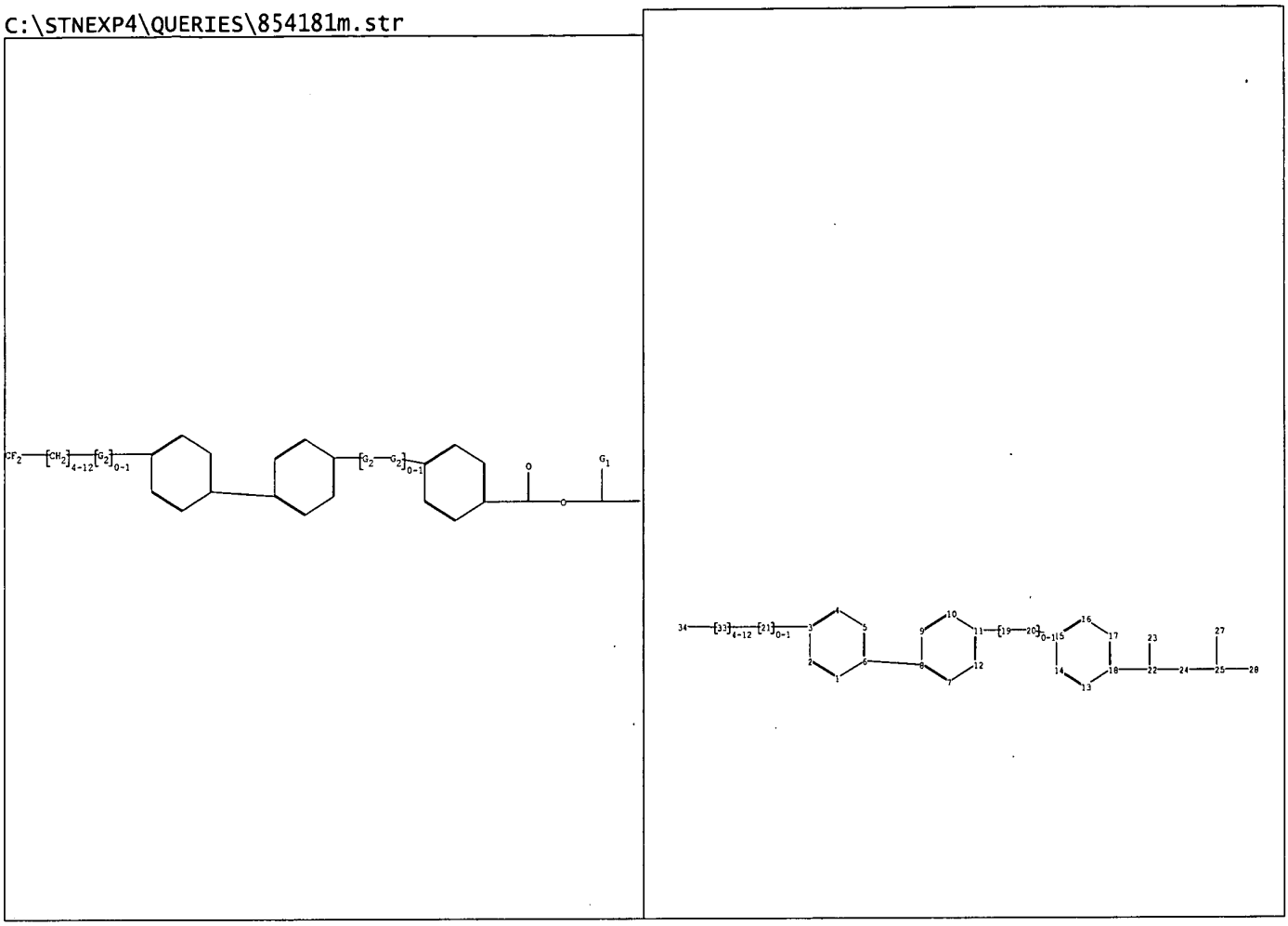
INT-CL (IPC): C09 K 19/54; G02 F 1/13; G02 F 1/137

ABSTRACT:

PURPOSE: To obtain an improver for liquid crystal characteristics, comprising a compound having a specific structure, capable of remarkably improving the memory margin of an antiferroelectric liquid crystal composition and sufficiently usable for a display.

CONSTITUTION: This improver comprises a compound of formula I [(m) is an integer of 4-14; (n) is an integer of 0-13; X is a single bond, O, COO or OCO; (r) is 1 or 2; (p) is an integer of 2-12; Z is CH3 or CF3]. For example, a compound of formula II is cited as the compound of formula I. Furthermore, the improver is preferably added in an amount of 0.1-40wt.%, preferably 1-20wt.% based on a liquid crystal composition, especially an antiferroelectric liquid crystal composition.

C:\STNEXP4\QUERIES\854181m.str



chain nodes :
19 20 21 22 23 24 25 27 28 33 34
ring nodes :
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
chain bonds :
3-21 6-8 11-19 15-20 18-22 19-20 21-33 22-23 22-24 24-25 25-27 25-28 33-34
ring bonds :
1-2 1-6 2-3 3-4 4-5 5-6 7-8 7-12 8-9 9-10 10-11 11-12 13-14 13-18 14-15
15-16 16-17 17-18
exact/norm bonds :
3-21 11-19 15-20 19-20 21-33 22-23 22-24 24-25 25-27
exact bonds :
6-8 18-22 25-28 33-34
normalized bonds :
1-2 1-6 2-3 3-4 4-5 5-6 7-8 7-12 8-9 9-10 10-11 11-12 13-14 13-18 14-15
15-16 16-17 17-18

G1:CH3,Et,n-Pr,CF3

G2:C,O

Match level :
1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom 11:Atom
12:Atom 13:Atom 14:Atom 15:Atom 16:Atom 17:Atom 18:Atom 19:CLASS 20:CLASS
21:CLASS 22:CLASS 23:CLASS 24:CLASS 25:CLASS 27:CLASS 28:CLASS 33:CLASS 34:CLASS

AN 2001:305417 CAPLUS
DN 135:84565
TI Unusual Thickness-Dependent Thermal Behavior and Anticlinic Coupling in Chiral Smectic Free-Standing Liquid-Crystal Films
AU Chao, C. Y.; Lo, C. R.; Wu, P. J.; Liu, Y. H.; Link, D. R.; Maclennan, J. E.; Clark, N. A.; Veum, M.; Huang, C. C.; Ho, J. T.
CS Department of Physics and Astronomy, National Central University, Chung-Li, 32054, Taiwan
SO Physical Review Letters (2001

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Search Results -

Term	Documents
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BISTABLES.DWPI,TDBD,EPAB,JPAB,USPT.	780
SWITCH$	0
SWITCH.DWPI,TDBD,EPAB,JPAB,USPT.	1293685
SWITCHA.DWPI,TDBD,EPAB,JPAB,USPT.	9
SWITCHAABLE.DWPI,TDBD,EPAB,JPAB,USPT.	1
SWITCHAB.DWPI,TDBD,EPAB,JPAB,USPT.	2
SWITCHABE.DWPI,TDBD,EPAB,JPAB,USPT.	2
SWITCHABILITY.DWPI,TDBD,EPAB,JPAB,USPT.	235
SWITCHABILITY/ADJUSTABILITY.DWPI,TDBD,EPAB,JPAB,USPT.	1
SWITCHABIY.DWPI,TDBD,EPAB,JPAB,USPT.	1
(L1 AND (BISTABLE OR SWITCH$)).USPT,JPAB,EPAB,DWPI,TDBD.	0

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Search History

DATE: Tuesday, October 22, 2002 Printable Copy Create Case

Set Name side by side	Query	Hit Count	Set Name result set
DB=USPT,JPAB,EPAB,DWPI,TDBD; PLUR=YES; OP=ADJ			
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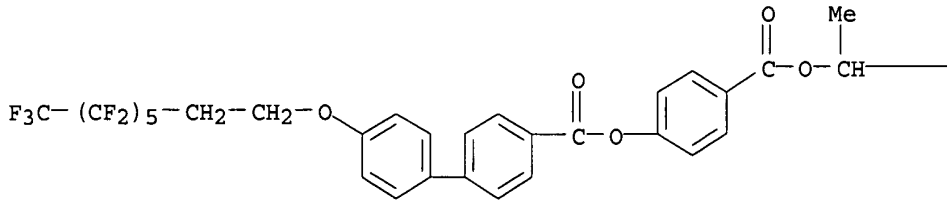
L4	L1 and room	1	L4
L3	L1 and viscosity	1	L3
L2	l1 and smectic A	1	L2
L1	us-5110497-$.did.	2	L1

END OF SEARCH HISTORY

AN 1998:624749 CAPLUS
DN 130:19089
TI Antiferroelectric liquid crystals with fluorinated parts of terminal chains. I. Synthesis of liquid crystalline compounds and their intermediates
AU Drzewinski, Witold; Dabrowski, Roman; Czyprynski, Krzysztof; Neubert, Mary
CS Instytut Chemii WAT, Warsaw, 01-489, Pol.
SO Biuletyn Wojskowej Akademii Technicznej (1998), 47(7-8), 53-68
CODEN: BWATFP; ISSN: 1234-5865
PB Wojskowa Akademia Techniczna
DT Journal
LA Polish
CC 75-11 (Crystallography and Liquid Crystals)
AB The method of prepg. the optically active hydroxyesters: 1-hydroxy-4-(octyl-2-oxycarbonyl)benzene, 4-hydroxy-4'-(octyl-2-oxycarbonyl)biphenyl, 4-(octyl-2-oxycarbonyl)-Ph 4'-hydroxybiphenyl-4-carboxylate and 4'-(octyl-2-oxycarbonyl)biphenyl-4-yl 4-hydroxybenzoate, has been elaborated. These intermediates were used for the synthesis of liq. cryst. homologous series of di- and triesters exhibiting the presence of tilted phases CA* and C*.
ST antiferroelec liq crystal fluorinated prepn
IT Liquid crystals
(antiferroelec.; prepn. and properties of antiferroelec. liq. crystals with fluorinated parts of terminal chains)
IT Antiferroelectric materials
(liq.-crystal; prepn. and properties of antiferroelec. liq. crystals with fluorinated parts of terminal chains)
IT Liquid crystals
(transitions; prepn. and properties of antiferroelec. liq. crystals with fluorinated parts of terminal chains)
IT 111153-16-3P 215929-81-0P 215929-82-1P 215929-89-8P 215929-90-1P 215929-92-3P
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and properties of antiferroelec. liq. crystals with fluorinated parts of terminal chains)
IT 205435-20-7P **215929-80-9P** 215929-83-2P 215929-84-3P 215929-85-4P 215929-86-5P 215929-87-6P 215929-88-7P 215929-91-2P 215929-93-4P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(prepn. and properties of antiferroelec. liq. crystals with fluorinated parts of terminal chains)
IT 622-08-2, 2-Benzyloxyethanol 647-42-7 1486-51-7, 4-Benzyloxybenzoic acid 4799-68-2, 3-Benzyloxypropan-1-ol 6169-06-8, (S)-(+)-2-Octanol 50670-76-3 58574-03-1, 4'-Hydroxybiphenyl-4-carboxylic acid 111153-19-6
RL: RCT (Reactant); RACT (Reactant or reagent)
(prepn. and properties of antiferroelec. liq. crystals with fluorinated parts of terminal chains)
IT 110-80-5P, 2-Ethoxyethanol 111-35-3P, 3-Ethoxypropan-1-ol 10215-33-5P, 3-Butoxypropan-1-ol 61911-33-9P 111153-18-5P 111153-20-9P 111153-21-0P 205584-35-6P 215929-94-5P 215929-95-6P 215929-96-7P 215929-97-8P 215929-98-9P 215929-99-0P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and properties of antiferroelec. liq. crystals with fluorinated parts of terminal chains)
IT **215929-80-9P**
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(prepn. and properties of antiferroelec. liq. crystals with fluorinated parts of terminal chains)
RN 215929-80-9 CAPLUS
CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-[(3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl)oxy]-, 4-[[(1-methylheptyl)oxy]carbonyl]phenyl ester

(9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B

— $(CH_2)_5$ — Me

AN 2001:305417 CAPLUS
DN 135:84565
TI Unusual Thickness-Dependent Thermal Behavior and Anticlinic Coupling in Chiral Smectic Free-Standing Liquid-Crystal Films
AU Chao, C. Y.; Lo, C. R.; Wu, P. J.; Liu, Y. H.; Link, D. R.; Maclennan, J. E.; Clark, N. A.; Veum, M.; Huang, C. C.; Ho, J. T.
CS Department of Physics and Astronomy, National Central University, Chung-Li, 32054, Taiwan
SO Physical Review Letters (2001), 86(18), 4048-4051
CODEN: PRLTAO; ISSN: 0031-9007
PB American Physical Society
DT Journal
LA English
CC 75-11 (Crystallography and Liquid Crystals)
Section cross-reference(s): 69, 76
AB A series of discrete transitions in the relative orientation of the tilt of the interior and surface layers was obsd. in free-standing films of a chiral smectic liq. crystal. These transitions include a remarkable reentrant synclinic-anticlinic-synclinic ordering sequence of the film surfaces in the presence of an elec. field upon cooling. The profiles of the assocd. heat-capacity anomalies are found to be strongly thickness dependent and exhibit a novel crossover behavior in reduced dimensions. The anticlinic coupling between tilted surface layers in the smectic-A phase were measured.
ST smectic liq crystal orientation tilt transition
IT Liquid crystals
(smectic; unusual thickness-dependent thermal behavior and anticlinic coupling in chiral smectic free-standing liq.-crystal films)
IT Electric field effects
(synclinic-anticlinic-synclinic ordering sequence of chiral smectic liq. crystal film surfaces in the presence of an elec. field upon cooling)
IT Liquid crystals
(transitions; unusual thickness-dependent thermal behavior and anticlinic coupling in chiral smectic free-standing liq.-crystal films)
IT Molecular orientation
Order
(unusual thickness-dependent thermal behavior and anticlinic coupling in chiral smectic free-standing liq.-crystal films)
IT **347192-53-4**
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(unusual thickness-dependent thermal behavior and anticlinic coupling in chiral smectic free-standing liq.-crystal films)
RE.CNT 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Akizuki, T; Jpn J Appl Phys 1999, V38, P4832 CAPLUS
(2) Anon; private communication from M D Wand
(3) Bahr, C; Phys Rev A 1990, V41, P4335 CAPLUS
(4) Bahr, C; Phys Rev A 1992, V46, P7657 CAPLUS
(5) Bahr, C; Phys Rev Lett 1993, V70, P1842 CAPLUS
(6) Cepic, M; Mol Cryst Liq Cryst 1995, V263, P61
(7) Chandani, A; Jpn J Appl Phys 1989, V28, PL1265 CAPLUS
(8) Dumrongrattana, S; Phys Rev A 1986, V33, PR2182
(9) Fukui, M; Jpn J Appl Phys 1989, V28, PL849 CAPLUS
(10) Geer, R; Rev Sci Instrum 1991, V62, P415 CAPLUS
(11) Johnson, P; Phys Rev E 2000, V62, P8106 CAPLUS
(12) Levelut, A; Phys Rev E 1999, V60, P6803 CAPLUS
(13) Link, D; Phys Rev Lett 1996, V77, P2237 CAPLUS
(14) Link, D; Phys Rev Lett 1999, V82, P2508 CAPLUS
(15) Liu, H; Phys Rev A 1989, V40, P6759
(16) Lorman, V; Mol Cryst Liq Cryst 1995, V262, P437
(17) Mach, P; Phys Rev Lett 1998, V81, P1015 CAPLUS
(18) Meyer, R; J Phys (Paris), Lett 1975, V36, P69

(19) Pikin, S; Mol Cryst Liq Cryst 1995, V262, P425
(20) Roy, A; Europhys Lett 1996, V36, P221 CAPLUS
(21) Shashidhar, R; Phys Rev Lett 1988, V61, P547 CAPLUS
(22) Stoebe, T; Phys Rev E 1996, V54, P1584 CAPLUS
(23) Young, C; Phys Rev Lett 1978, V40, P773 CAPLUS

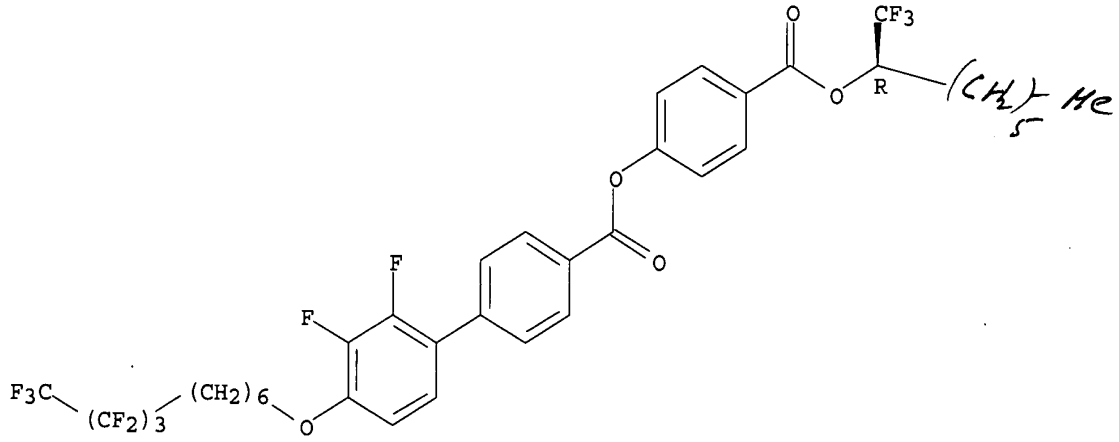
IT **347192-53-4**
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(unusual thickness-dependent thermal behavior and anticlinic coupling in chiral smectic free-standing liq.-crystal films)

RN 347192-53-4 CAPLUS

CN [1,1'-Biphenyl]-4-carboxylic acid, 2',3'-difluoro-4'-[(7,7,8,8,9,9,10,10,10-nonafluorodecyl)oxy]-, 4-[[[(1R)-1-(trifluoromethyl)heptyl]oxy]carbonyl]phenyl ester (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



AN 2002:172022 CAPLUS
DN 136:224305
TI Partially fluorinated liquid crystal material
IN Wand, Michael; Gough, Neil; Chen, Xin Hua
PA Displaytech, Inc., USA
SO PCT Int. Appl., 91 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM C09K019-34
ICS C09K019-20; C09K019-12; C07C069-76
CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 75
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2002018514	A1	20020307	WO 2001-US27182	20010831
	W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	AU 2001085364	A5	20020313	AU 2001-85364	20010831
PRAI	US 2000-229892P	P	20000901		
	US 2001-854181	A	20010511		
	WO 2001-US27182	W	20010831		

OS MARPAT 136:224305
AB The invention provides LC compns. that exhibit V-shaped switching when aligned in an analog device configuration and exhibit bistable switching when aligned in a bookshelf-type device configuration. The invention more specifically provides LC compns. of (R = fluorinated alkyl, ether; A, B, C = 5-6 arom. rings each substituted with 1-4 fluorines and CH can be substituted with N, O, S; d = 0, 1; D = COO, OOC, CH2CH2, double bond, triple bond; Y = C1-6 alkyl, fluorinated alkyl; R1 = nonchiral tail alkyl with CH2 group replaced by O, S, etc.) which exhibit bistable switching as well as V-shaped switching when aligned in appropriate device configurations. The invention also provides methods of using the compds. of the invention in making LC compns. and electrooptical devices comprising an aligned layer of the compns. of this invention.
ST fluorinated liq crystal compn display
IT Liquid crystal displays
(partially fluorinated liq. crystal material for)
IT Liquid crystals
(partially fluorinated liq. crystal material for liq. crystal display)
IT 119557-43-6 **402860-24-6 402860-25-7**
402860-26-8 402860-27-9 402860-28-0 402860-29-1
402860-30-4 402860-31-5 402860-32-6 402860-33-7 402860-34-8
402860-35-9 402860-36-0 402860-37-1
RL: DEV (Device component use); USES (Uses)
(partially fluorinated liq. crystal material for liq. crystal display)
IT 402860-38-2
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(partially fluorinated liq. crystal material for liq. crystal display)
IT **347192-53-4P 402860-12-2P** 402860-23-5P
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(partially fluorinated liq. crystal material for liq. crystal display)
IT 402860-22-4P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT

(Reactant or reagent)
(partially fluorinated liq. crystal material for liq. crystal display)

IT 402860-19-9P
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(prepn. of partially fluorinated liq. crystal material for liq. crystal display)

IT 98-59-9, Tosyl chloride 100-39-0, Benzyl bromide 104-15-4, reactions 110-53-2, 1-Bromopentane 110-87-2 120-47-8, Ethyl 4-hydroxybenzoate 423-39-2 821-41-0, 5-Hexen-1-ol 1438-82-0, 1,1,1,3,3-Pentamethyldisiloxane 5419-55-6 5798-75-4, Ethyl 4-bromobenzoate 6418-38-8, 2,3-Difluorophenol 7103-09-5 15448-47-2, reactions 16853-85-3 33036-62-3, 4-Bromobutan-1-ol 121170-45-4, [R]-1-Trifluoromethyl heptanol
RL: RCT (Reactant); RACT (Reactant or reagent)
(prepn. of partially fluorinated liq. crystal material for liq. crystal display)

IT 1486-51-7P, 4-Benzyloxybenzoic acid 31608-22-7P 56441-55-5P, Ethyl 4-benzyloxybenzoate 116486-78-3P 121170-46-5P 121170-47-6P 144178-30-3P 162082-63-5P 181042-39-7P 228570-09-0P 402860-04-2P 402860-05-3P 402860-06-4P 402860-07-5P 402860-08-6P 402860-09-7P 402860-10-0P 402860-11-1P 402860-13-3P 402860-14-4P 402860-15-5P 402860-16-6P 402860-17-7P 402860-18-8P 402860-20-2P 402860-21-3P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. of partially fluorinated liq. crystal material for liq. crystal display)

RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Drzewinski; CAPLUS 1198:624787
(2) Okabe; JP 882778 1996
(3) Suzuki; US 5110497 A 1992 CAPLUS

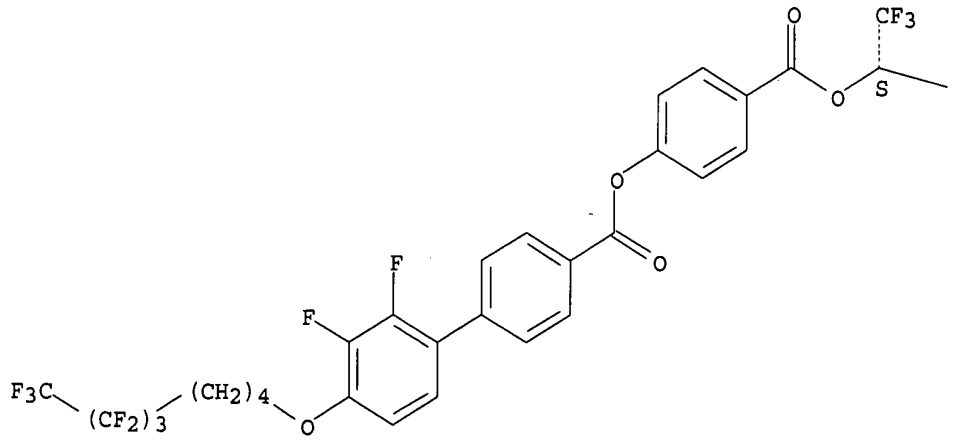
IT **402860-24-6 402860-25-7 402860-26-8**
RL: DEV (Device component use); USES (Uses)
(partially fluorinated liq. crystal material for liq. crystal display)

RN 402860-24-6 CAPLUS

CN [1,1'-Biphenyl]-4-carboxylic acid, 2',3'-difluoro-4'-[(5,5,6,6,7,7,8,8,8-nonafluorooctyl)oxy]-, 4-[[[(1S)-1-(trifluoromethyl)heptyl]oxy]carbonyl]phenyl ester (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



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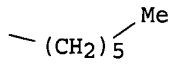
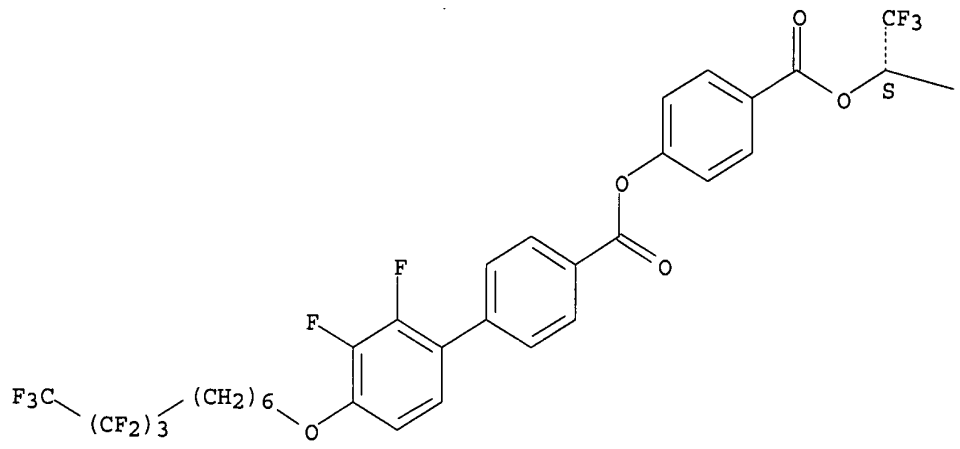


RN 402860-25-7 CAPLUS
CN [1,1'-Biphenyl]-4-carboxylic acid, 2',3'-difluoro-4'-[(7,7,8,8,9,9,10,10,10-nonafluorodecyl)oxy]-, 4-[[[(1S)-1-(trifluoromethyl)heptyl]oxy]carbonyl]phenyl ester (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



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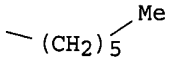

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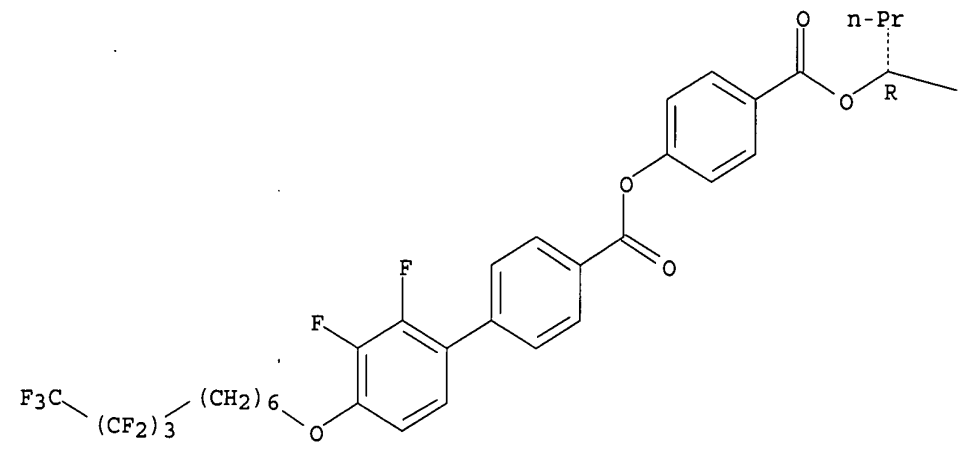
CN [1,1'-Biphenyl]-4-carboxylic acid, 2',3'-difluoro-4'-[(7,7,8,8,9,9,10,10,10-nonafluorodecyl)oxy]-, 4-[[[(1R)-1-propylheptyl]oxy]carbonyl]phenyl ester (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



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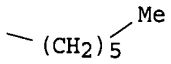
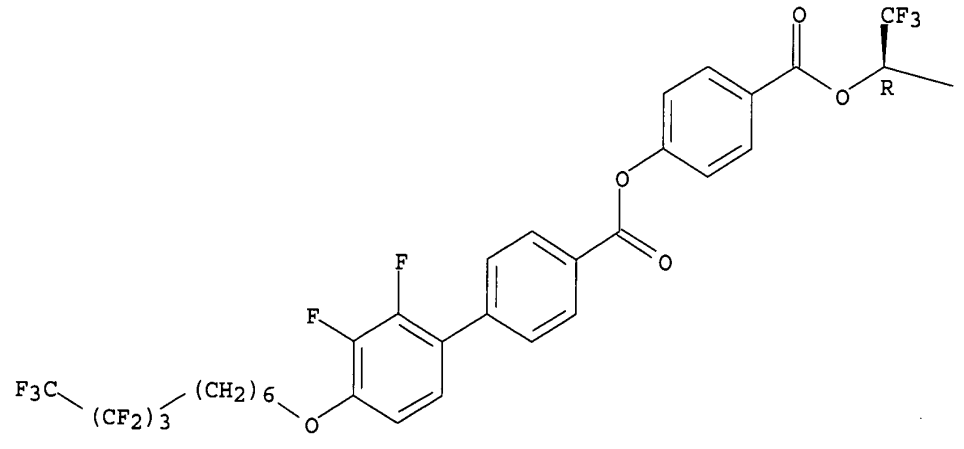


IT **347192-53-4P 402860-12-2P**
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(partially fluorinated liq. crystal material for liq. crystal display)
RN 347192-53-4 CAPLUS
CN [1,1'-Biphenyl]-4-carboxylic acid, 2',3'-difluoro-4'-[(7,7,8,8,9,9,10,10,10-nonafluorodecyl)oxy]-, 4-[[[(1R)-1-(trifluoromethyl)heptyl]oxy]carbonyl]phenyl ester (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



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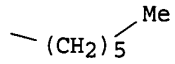
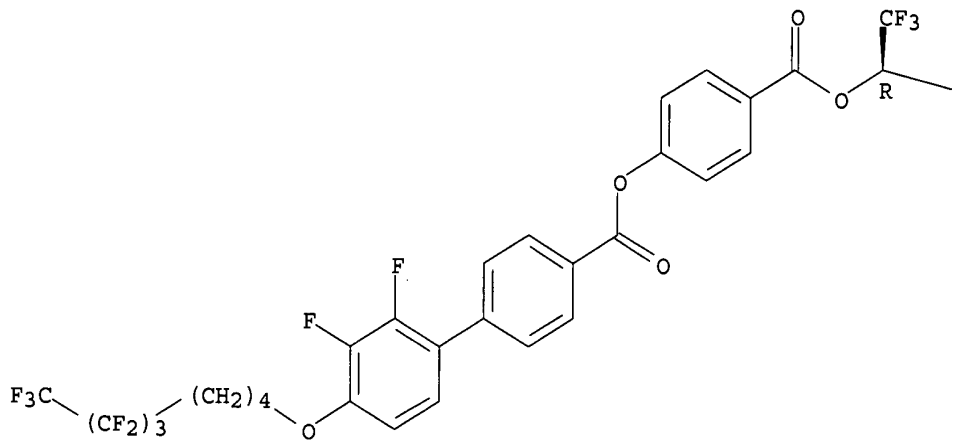


RN 402860-12-2 CAPLUS
CN [1,1'-Biphenyl]-4-carboxylic acid, 2',3'-difluoro-4'-[(5,5,6,6,7,7,8,8,8-nonafluorooctyl)oxy]-, 4-[[[(1R)-1-(trifluoromethyl)heptyl]oxy]carbonyl]phenyl ester (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



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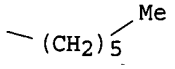

AN 2002:399159 CAPLUS
DN 137:177483
TI Electro-optic characteristics of de Vries tilted smectic liquid crystals: Analog behavior in the smectic A* and smectic C* phases
AU Clark, N. A.; Bellini, T.; Shao, R.-F.; Coleman, D.; Bardon, S.; Link, D. R.; Maclennan, J. E.; Chen, X.-H.; Wand, M. D.; Walba, D. M.; Rudquist, P.; Lagerwall, S. T.
CS Department of Physics, and Ferroelectric Liquid Crystal Materials Research Centre, University of Colorado, Boulder, CO, 80309, USA
SO Applied Physics Letters (2002), 80(22), 4097-4099
CODEN: APPLAB; ISSN: 0003-6951
PB American Institute of Physics
DT Journal
LA English
CC 75-11 (Crystallography and Liquid Crystals)
AB Chiral smectic A liq. crystal materials of the de Vries type (with mols. tilted relative to the layer normal) exhibit analog field-induced (electroclinic) optic axis rotation accompanied by an increase in birefringence. The authors identify two such de Vries smectic A* materials and use them to develop and test models for these characteristic electrooptic effects. These materials also exhibit colossal analog field-induced optic axis rotation in the lower temp. smectic C* phase, a consequence of polarization charge stabilization, and of polarization screening of the applied field in the liq. crystal.
ST electrooptic effect de Vries tilted smectic liq crystal
IT Electrooptical effect
(electro-optic characteristics of de Vries tilted smectic liq. crystals: analog behavior in smectic A* and smectic C* phases)
IT Birefringence
(of MDW122C4 and MDW122C6 smectic liq. crystals accompanied by field-induced optic axis rotation)
IT Liquid crystals
(smectic; electro-optic characteristics of de Vries tilted smectic liq. crystals: analog behavior in smectic A* and smectic C* phases)
IT **347192-53-4 402860-12-2**
RL: PRP (Properties)
(electro-optic characteristics of de Vries tilted smectic liq. crystals: analog behavior in smectic A* and smectic C* phases)
RE.CNT 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Bahr, C; Phys Rev A 1991, V44, P3669 CAPLUS
(2) Bahr, C; Phys Rev A 1991, V41, P4335
(3) Bahr, C; Physica A 1991, V174, P139 CAPLUS
(4) Bartoli, F; Phys Rev E 1997, V55, PR1271 CAPLUS
(5) Clark, N; Appl Phys Lett 1980, V36, P899 CAPLUS
(6) Clark, N; J Mater Chem 1999, V9, P1257
(7) Clark, N; Liq Cryst 2000, V27, P985 CAPLUS
(8) de Vries, A; Mol Cryst Liq Cryst 1977, V41, P27 CAPLUS
(9) Fukuda, A; Proceedings of the 15th International Display Research Conference of the SID 1995, P61
(10) Garoff, S; Phys Rev A 1979, V19, P338 CAPLUS
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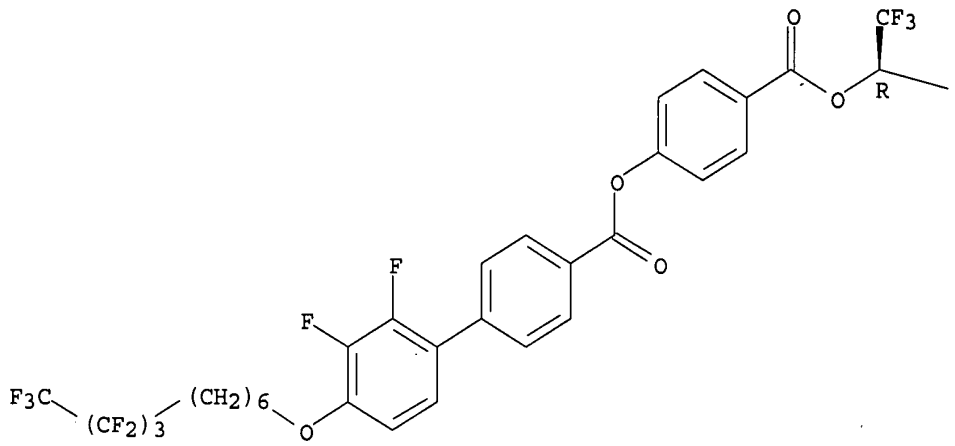
(14) Meyer, R; J Phys (France) 1975, V36, PL-69
(15) Rudquist, P; Digest of Technical Papers of the SID International Symposium 1999, P409
(16) Selinger, J; Phys Rev E 2001, V64, P061705 MEDLINE
(17) Zhuang, Z; Proc SPIE 1989, V1080, P110 CAPLUS
IT **347192-53-4 402860-12-2**
RL: PRP (Properties)
(electro-optic characteristics of de Vries tilted smectic liq. crystals: analog behavior in smectic A* and smectic C* phases)
RN 347192-53-4 CAPLUS

CN [1,1'-Biphenyl]-4-carboxylic acid, 2',3'-difluoro-4'-[(7,7,8,8,9,9,10,10,10-nonafluorodecyl)oxy]-, 4-[[[(1R)-1-(trifluoromethyl)heptyl]oxy]carbonyl]phenyl ester (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



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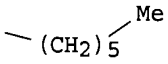

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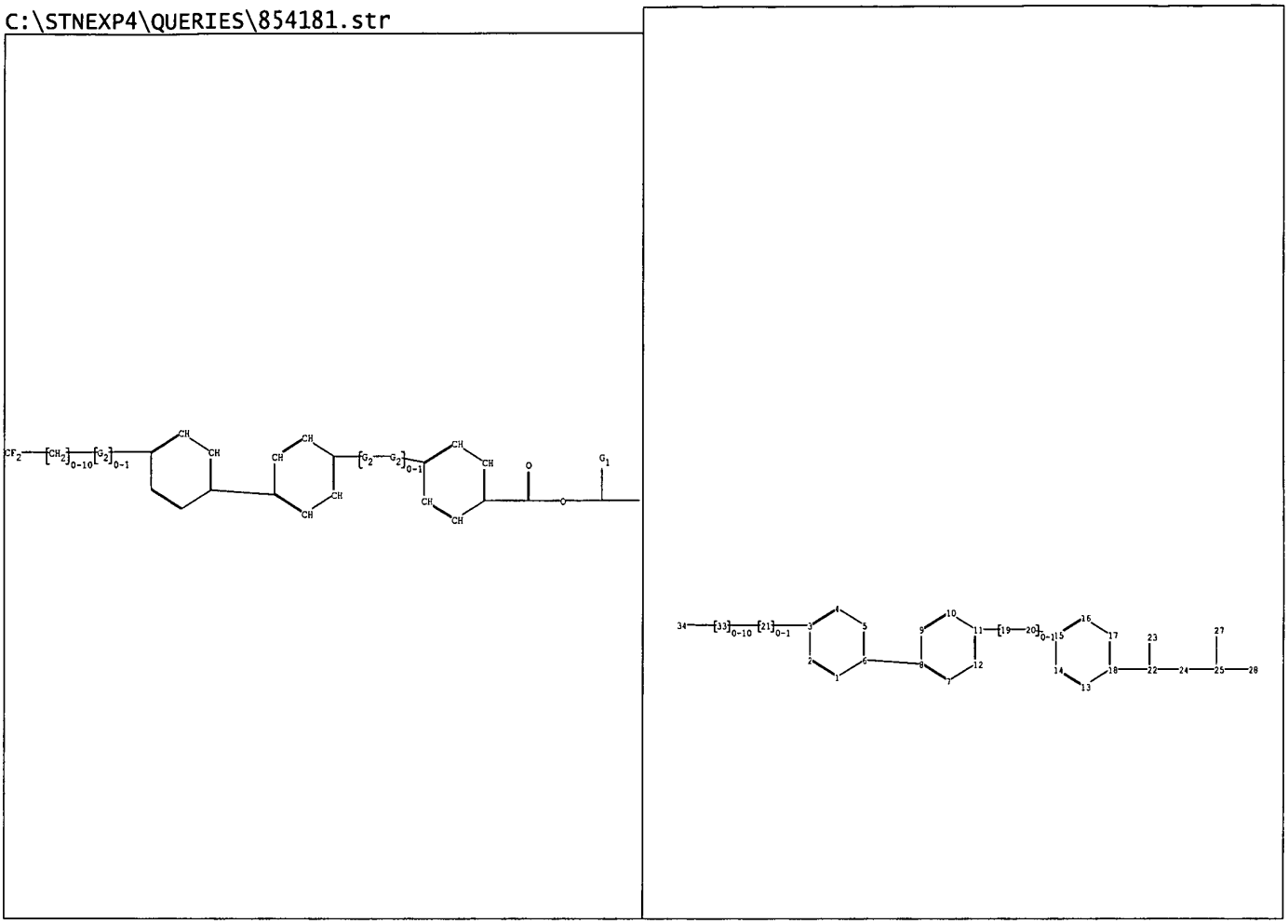

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ring nodes :
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chain bonds :
3-21 6-8 11-19 15-20 18-22 19-20 21-33 22-23 22-24 24-25 25-27 25-28 33-34
ring bonds :
1-2 1-6 2-3 3-4 4-5 5-6 7-8 7-12 8-9 9-10 10-11 11-12 13-14 13-18 14-15
15-16 16-17 17-18
exact/norm bonds :
3-21 11-19 15-20 19-20 21-33 22-23 22-24 24-25 25-27
exact bonds :
6-8 18-22 25-28 33-34
normalized bonds :
1-2 1-6 2-3 3-4 4-5 5-6 7-8 7-12 8-9 9-10 10-11 11-12 13-14 13-18 14-15
15-16 16-17 17-18

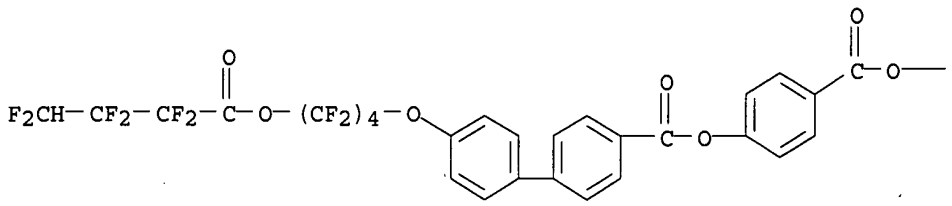
G1:CH3,Et,n-Pr,CF3

G2:C,O

Match level :
1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom 11:Atom
12:Atom 13:Atom 14:Atom 15:Atom 16:Atom 17:Atom 18:Atom 19:CLASS 20:CLASS
21:CLASS 22:CLASS 23:CLASS 24:CLASS 25:CLASS 27:CLASS 28:CLASS 33:CLASS 34:CLASS

AN 1998:624787 CAPLUS
DN 129:338458
TI Antiferroelectric liquid crystals with fluorinated parts of terminal chains. II. Investigations of liquid crystalline phases by miscibility, polarizing thermomicroscopic and differential scanning calorimetry (DSC) methods
AU Drzewinski, Witold; Dabrowski, Roman; Czuprynski, Krzysztof; Kening, Krystyna
CS Instytut Chemii WAT, Warsaw, 01-489, Pol.
SO Biuletyn Wojskowej Akademii Technicznej (1998), 47(7-8), 69-88
CODEN: BWATFP; ISSN: 1234-5865
PB Wojskowa Akademia Techniczna
DT Journal
LA Polish
CC 76-8 (Electric Phenomena)
Section cross-reference(s): 75
AB Using the DSC and thermomicroscopic methods phase transitions were measured of compds. belonging to seven homologous series: 4'-(octyl-2-oxycarbonyl)phenyl 4-(alkanoyloxy-alkoxy)-(1) or 4-(perfluorslkanoyloxyalkoxy)-(2) or 4-(ethoxyalkoxy)-(3) or 4-(2,2,2-trifluoroethoxyalkoxy)biphenyl-4-yl 4'-(1H,1H,2H,2H-perfluoro-octyloxy)-(6) or 4-(ethoxyalkoxy)-(7) benzoates. The smectic phases were identified by microscopic textures and miscibility studies with std. compds. The presence of tilted phases IA*, CA* and C* was obsd. in the series 1, 2, 3 and 4. The compds. of series 2 show antiferroelec. CA* phase for short as well as long perfluoroacyl groups.
ST fluoro antiferroelec liq crystal homologous series
IT Liquid crystals
(antiferroelec.; properties of antiferroelec. liq. crystals with fluorinated parts of terminal chains)
IT Antiferroelectric materials
(liq.-crystal; properties of antiferroelec. liq. crystals with fluorinated parts of terminal chains)
IT Homologous series
(properties of antiferroelec. liq. crystals with fluorinated parts of terminal chains)
IT Liquid crystals
(smectic A; properties of antiferroelec. liq. crystals with fluorinated parts of terminal chains)
IT Liquid crystals
(smectic C; properties of antiferroelec. liq. crystals with fluorinated parts of terminal chains)
IT 109204-50-4 123286-51-1, MHPOBC 210753-35-8 215234-20-1
215234-21-2 215234-23-4 215234-24-5 215234-26-7 215234-27-8
215234-28-9 215234-29-0 215234-30-3
215234-31-4 215234-32-5 215234-33-6 215234-34-7
215234-35-8 215234-36-9 215234-37-0 215234-39-2
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(properties of antiferroelec. liq. crystals with fluorinated parts of terminal chains)
IT **215234-28-9 215234-29-0 215234-30-3**
215234-31-4 215234-32-5
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(properties of antiferroelec. liq. crystals with fluorinated parts of terminal chains)
RN 215234-28-9 CAPLUS
CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-[1,1,2,2,3,3,4,4-octafluoro-4-(2,2,3,3,4,4-hexafluoro-1-oxobutoxy)butoxy]-, 4-[[(1-methylheptyl)oxy]carbonyl]phenyl ester (9CI) (CA INDEX NAME)

PAGE 1-A



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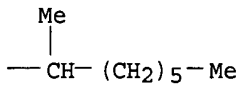
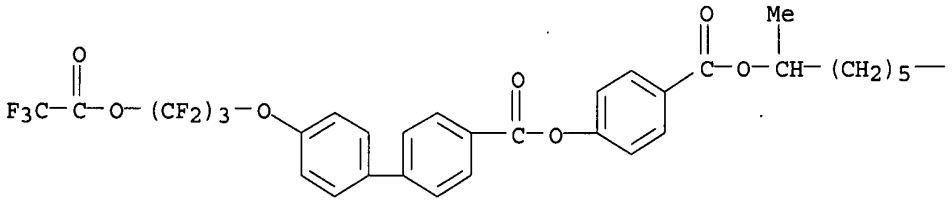


RN 215234-29-0 CAPLUS
CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-[1,1,2,2,3,3-hexafluoro-3-[(trifluoroacetyl)oxy]propoxy]-, 4-[[(1-methylheptyl)oxy]carbonyl]phenyl ester (9CI) (CA INDEX NAME)

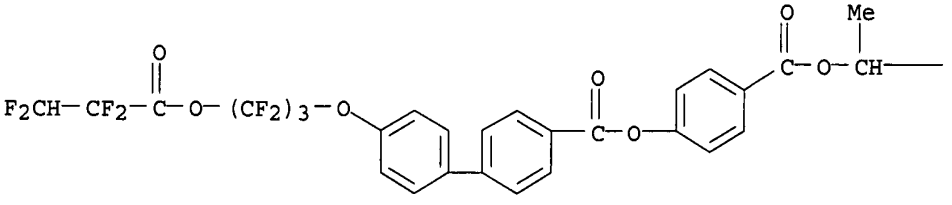
PAGE 1-A



PAGE 1-B

RN 215234-30-3 CAPLUS
CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-[1,1,2,2,3,3-hexafluoro-3-(2,2,3,3-tetrafluoro-1-oxopropoxy)propoxy]-, 4-[[(1-methylheptyl)oxy]carbonyl]phenyl ester (9CI) (CA INDEX NAME)

PAGE 1-A



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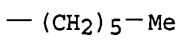
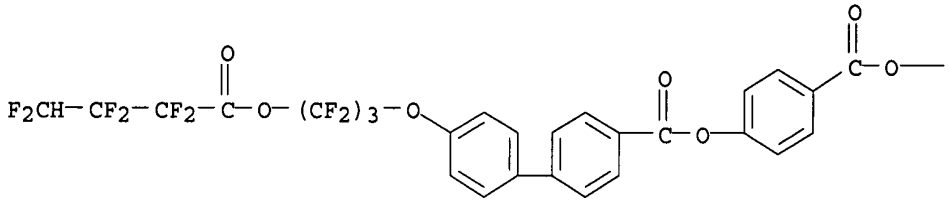


RN 215234-31-4 CAPLUS
CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-[1,1,2,2,3,3-hexafluoro-3-(2,2,3,3,4,4-hexafluoro-1-oxobutoxy)propoxy]-, 4-[[(1-methylheptyl)oxy]carbonyl]phenyl ester (9CI) (CA INDEX NAME)

PAGE 1-A



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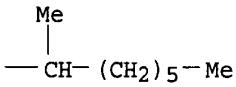
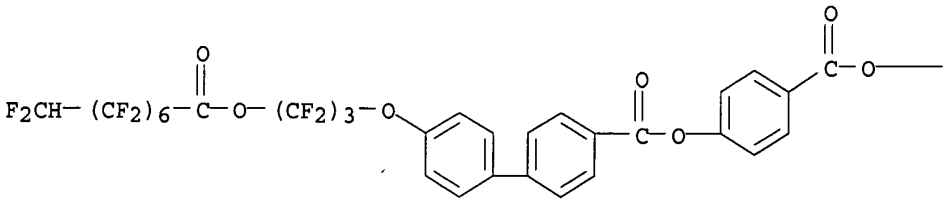


RN 215234-32-5 CAPLUS
CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-[1,1,2,2,3,3-hexafluoro-3-[(2,2,3,3,4,4,5,5,6,6,7,7,8,8-tetradecafluoro-1-oxooctyl)oxy]propoxy]-, 4-[[(1-methylheptyl)oxy]carbonyl]phenyl ester (9CI) (CA INDEX NAME)

PAGE 1-A



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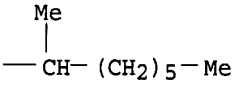

DN 129:338458
TI Antiferroelectric liquid crystals with fluorinated parts of terminal chains. II. Investigations of liquid crystalline phases by miscibility, polarizing thermomicroscopic and differential scanning calorimetry (DSC) methods
AU Drzewinski, Witold; Dabrowski, Roman; Czuprynski, Krzysztof; Kening, Krystyna
CS Instytut Chemii WAT, Warsaw, 01-489, Pol.
SO Biuletyn Wojskowej Akademii Technicznej (1998), 47(7-8), 69-88
CODEN: BWATFP; ISSN: 1234-5865
PB Wojskowa Akademia Techniczna
DT Journal
LA Polish
CC 76-8 (Electric Phenomena)
Section cross-reference(s): 75
AB Using the DSC and thermomicroscopic methods phase transitions were measured of compds. belonging to seven homologous series: 4'-(octyl-2-oxycarbonyl)phenyl 4-(alkanoyloxy-alkoxy)-(1) or 4-(perfluorslkanoyloxyalkoxy)-(2) or 4-(ethoxyalkoxy)-(3) or 4-(2,2,2-trifluoroethoxyalkoxy)biphenyl-4-yl 4'-(1H,1H,2H,2H-perfluoro-octyloxy)-(6) or 4-(ethoxyalkoxy)-(7) benzoates. The smectic phases were identified by microscopic textures and miscibility studies with std. compds. The presence of tilted phases IA*, CA* and C* was obsd. in the series 1, 2, 3 and 4. The compds. of series 2 show antiferroelec. CA* phase for short as well as long perfluoroacyl groups.
ST fluoro antiferroelec liq crystal homologous series
IT Liquid crystals
(antiferroelec.; properties of antiferroelec. liq. crystals with fluorinated parts of terminal chains)
IT Antiferroelectric materials
(liq.-crystal; properties of antiferroelec. liq. crystals with fluorinated parts of terminal chains)
IT Homologous series
(properties of antiferroelec. liq. crystals with fluorinated parts of terminal chains)
IT Liquid crystals
(smectic A; properties of antiferroelec. liq. crystals with fluorinated parts of terminal chains)
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(smectic C; properties of antiferroelec. liq. crystals with fluorinated parts of terminal chains)
IT 109204-50-4 123286-51-1, MHPOBC 210753-35-8 215234-20-1
215234-21-2 215234-23-4 215234-24-5 215234-26-7 215234-27-8
215234-28-9 215234-29-0 215234-30-3
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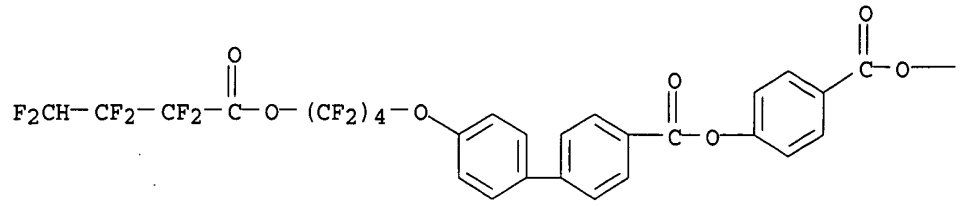
215234-35-8 215234-36-9 215234-37-0 215234-39-2
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(properties of antiferroelec. liq. crystals with fluorinated parts of terminal chains)
IT **215234-28-9 215234-29-0 215234-30-3**
215234-31-4 215234-32-5
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(properties of antiferroelec. liq. crystals with fluorinated parts of terminal chains)
RN 215234-28-9 CAPLUS
CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-[1,1,2,2,3,3,4,4-octafluoro-4-(2,2,3,3,4,4-hexafluoro-1-oxobutoxy)butoxy]-, 4-[[(1-methylheptyl)oxy]carbonyl]phenyl ester (9CI) (CA INDEX NAME)

PAGE 1-A



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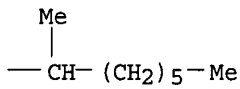
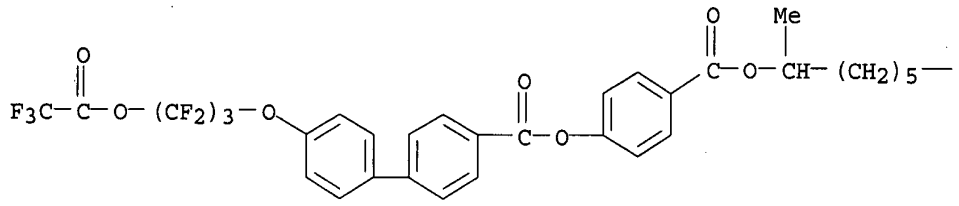


RN 215234-29-0 CAPLUS
CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-[1,1,2,2,3,3-hexafluoro-3-[(trifluoroacetyl)oxy]propoxy]-, 4-[[(1-methylheptyl)oxy]carbonyl]phenyl ester (9CI) (CA INDEX NAME)

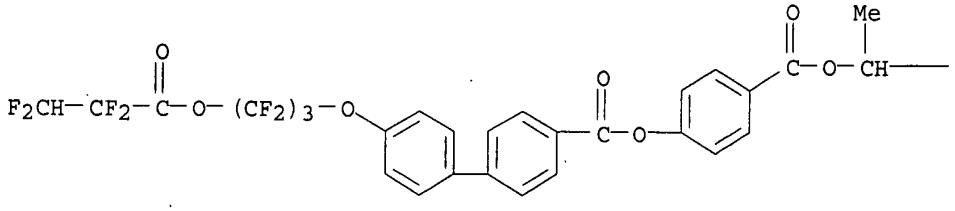
PAGE 1-A



PAGE 1-B

RN 215234-30-3 CAPLUS
CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-[1,1,2,2,3,3-hexafluoro-3-(2,2,3,3-tetrafluoro-1-oxopropoxy)propoxy]-, 4-[[(1-methylheptyl)oxy]carbonyl]phenyl ester (9CI) (CA INDEX NAME)

PAGE 1-A



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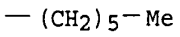
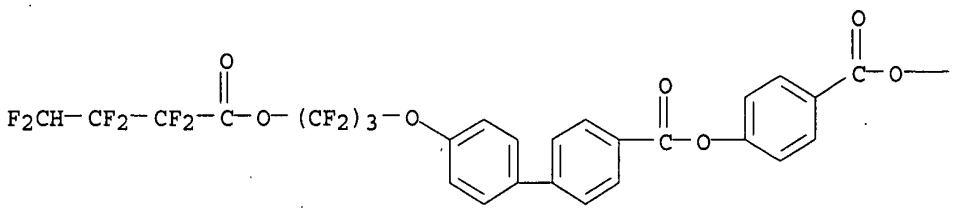


RN 215234-31-4 CAPLUS
CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-[1,1,2,2,3,3-hexafluoro-3-(2,2,3,3,4,4-hexafluoro-1-oxobutoxy)propoxy]-, 4-[[(1-methylheptyl)oxy]carbonyl]phenyl ester (9CI) (CA INDEX NAME)

PAGE 1-A



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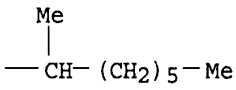
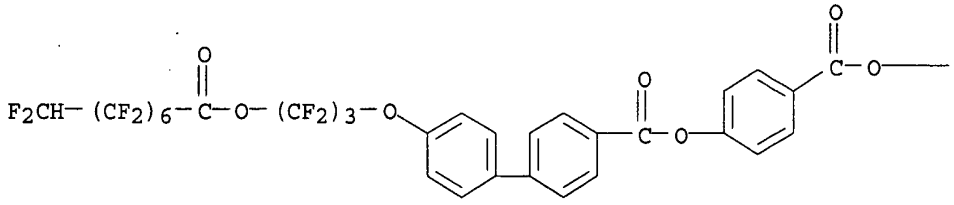


RN 215234-32-5 CAPLUS
CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-[1,1,2,2,3,3-hexafluoro-3-[(2,2,3,3,4,4,5,5,6,6,7,7,8,8-tetradecafluoro-1-oxooctyl)oxy]propoxy]-, 4-[[(1-methylheptyl)oxy]carbonyl]phenyl ester (9CI) (CA INDEX NAME)

PAGE 1-A



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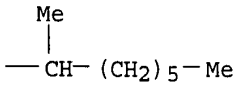


AN 1992:49354 CAPLUS
DN 116:49354
TI Optically active compound for liquid-crystal compositions and liquid-crystal compositions containing it
IN Suzuki, Yoshiichi; Sakuma, Shigenori; Yamakawa, Noriko
PA Showa Shell Sekiyu K. K., Japan
SO Eur. Pat. Appl., 14 pp.
CODEN: EPXXDW
DT Patent
LA English
IC ICM C09K019-20
ICS C09K019-46
CC 75-11 (Crystallography and Liquid Crystals)
Section cross-reference(s): 74, 76

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 439190	A2	19910731	EP 1991-100982	19910125
	EP 439190	A3	19920115		
	EP 439190	B1	19950906		
	R: DE, FR, GB				
	JP 03221588	A2	19910930	JP 1990-17459	19900126
	US 5110497	A	19920505	US 1991-646115	19910128
PRAI	JP 1990-17459		19900126		

OS MARPAT 116:49354
AB The compd. has the general formula R1XAYBZCH(R3)R2, where R1 = C1-18 fluoroalkyl; R2 = C1-16 alkyl or C6-16 aralkyl; R3 = C2F5, CF3, CHF2, or CH2F; X = single bond, O, COO, or OCO; Y = COO, OCO, CH2O, or OCH2; Z = COO or O; and A,B = cyclic groups.
ST optically active compd liq crystal compn; fluorinated compd liq crystal compn
IT Optical imaging devices
(electro-, liq.-crystal, mixts. for, optically active compds. for)
IT Liquid crystals
(ferroelec., mixts., optically active compds. for)
IT Ferroelectric substances
(liq.-crystal, mixts., optically active compds. for)
IT **138345-58-1**
RL: PRP (Properties)
(liq. crystal, for display devices)
IT 121170-46-5P 121170-47-6P 138509-07-6P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and reaction of, in formation of optically active compds. for liq.-crystal compns.)
IT **138345-57-0P 138509-06-5P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of, for liq.-crystal compns.)
IT **138345-58-1**
RL: PRP (Properties)
(liq. crystal, for display devices)
RN 138345-58-1 CAPLUS
CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-(octyloxy)-, 4-(octyloxy)phenyl ester, mixt. with (R)-4-[[[1-(trifluoromethyl)heptyl]oxy]carbonyl]phenyl 4'-[(3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl)oxy][1,1'-biphenyl]-4-carboxylate (9CI) (CA INDEX NAME)

CM 1

CRN 138345-57-0
CMF C36 H30 F16 O5

Absolute stereochemistry.

AN 1999:624161 CAPLUS
DN 131:344498
TI New antiferroelectric compounds containing partially fluorinated terminal chains. Synthesis and mesomorphic properties
AU Drzewinski, Witold; Czuprynski, Krzysztof; Dabrowski, Roman; Neubert, Mary
CS Institute of Chemistry, Military University of Technology, Warsaw, 00-908, Pol.
SO Molecular Crystals and Liquid Crystals Science and Technology, Section A: Molecular Crystals and Liquid Crystals (1999), 328, 401-410
CODEN: MCLCE9; ISSN: 1058-725X
PB Gordon & Breach Science Publishers
DT Journal
LA English
CC 75-11 (Crystallography and Liquid Crystals)
Section cross-reference(s): 25, 76
AB Methods for prepg. optically active hydroxyesters: 1-hydroxy-4-(1-methylheptyloxycarbonyl)benzene and 4-hydroxy-4'-(1-methylheptyloxy-carbonyl)biphenyl, 4-(1-methylheptyloxycarbonyl)phenyl 4'-hydroxybiphenyl-4-carboxylate and 4'-(1-methylheptyloxy carbonyl)biphenyl-4-yl 4-hydroxybenzoate were elaborated. These compds. were used as intermediates for prepg. liq. cryst. homologous series of di- and triesters exhibiting tilted smectic phases CA* and C. The phase transitions were measured by DSC and thermomicroscopic methods and the smectic phases were identified by microscopic textures and miscibility studies.
ST antiferroelec hydroxyester deriv partially fluorinated terminal chain mesomorphism
IT Liquid crystals
(antiferroelec.; prepn. and properties of di- and triesters exhibiting tilted smectic CA* and C phases)
IT Antiferroelectric materials
(liq.-crystal; prepn. and properties of di- and triesters exhibiting tilted smectic CA* and C phases)
IT Homologous series
(prepn. and properties of di- and triesters exhibiting tilted smectic CA* and C phases)
IT Liquid crystals
(transitions; of hydroxyester derivs. contg. partially fluorinated terminal chain)
IT 205435-20-7P 205435-21-8P 210753-28-9P 210753-29-0P 210753-30-3P
210753-31-4P 210753-32-5P 210753-33-6P 210753-34-7P 215929-83-2P
215929-84-3P 215929-85-4P 215929-87-6P 215929-88-7P 250130-29-1P
250130-30-4P 250130-32-6P **250130-33-7P** 250130-34-8P
RL: PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
(synthesis and mesomorphic properties)
RE.CNT 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Arai, Y; EP 585032 1993 CAPLUS
(2) Chiang, C; Mol Cryst Liq Cryst 1991, V208, P85
(3) Drzewinski, W; Biul WAT 1998, VXLVII(7-8)
(4) Drzewinski, W; SPIE 1997, V3319, P100
(5) Drzewinski, W; to be published in Ferroelectrics 1998
(6) Fafara, A; to be published in Ferroelectrics 1998
(7) Goodby, J; J Mater Chem 1992, V2, P197 CAPLUS
(8) Hiraoka, K; Jpn J App Phys 1990, V29(Part 2), P103
(9) Isozaki, T; J Mater Chem 1994, V4, P237 CAPLUS
(10) Janulis, E; Ferroelectrics 1988, V85, P375
(11) Kobayashi, T; EP 225195 CAPLUS
(12) Liu, H; Liq Cryst 1998, V24, P719 CAPLUS
(13) Manhas, M; JCS Perkin 1975, P461 CAPLUS
(14) Moritake, H; Ferroelectrics 1993, V147, P53 CAPLUS
(15) Przedmojski, J; Mol Cryst Liq Cryst, Proceedings ILCC'98
(16) Stebler, B; Information Display 1998, V14(2), P20

(17) Surgu, P; Information Display 1998, V14(2), P34
(18) Suzuki, Y; EP 402233 1990 CAPLUS
(19) Suzuki, Y; Ferroelectrics 1993, V147, P109 CAPLUS

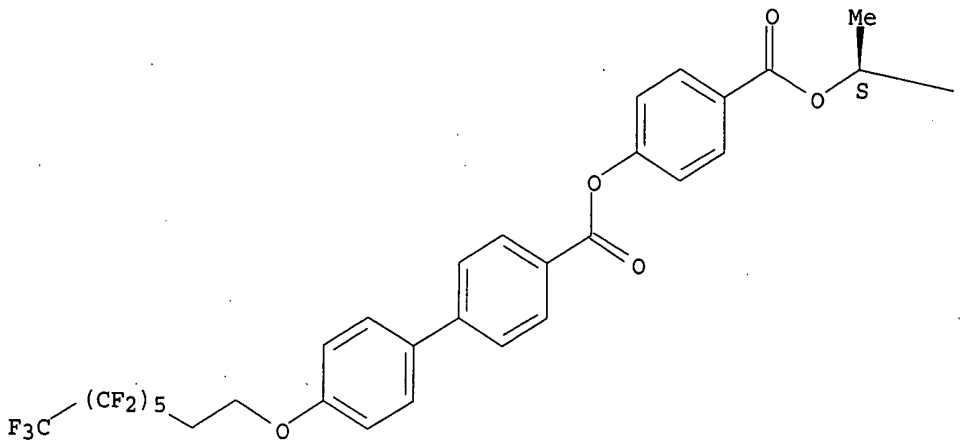
IT **250130-33-7P**
RL: PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
(synthesis and mesomorphic properties)

RN 250130-33-7 CAPLUS

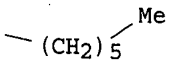
CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-[(3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl)oxy]-, 4-[[[(1S)-1-methylheptyl]oxy]carbonyl]phenyl ester (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



PAGE 1-B



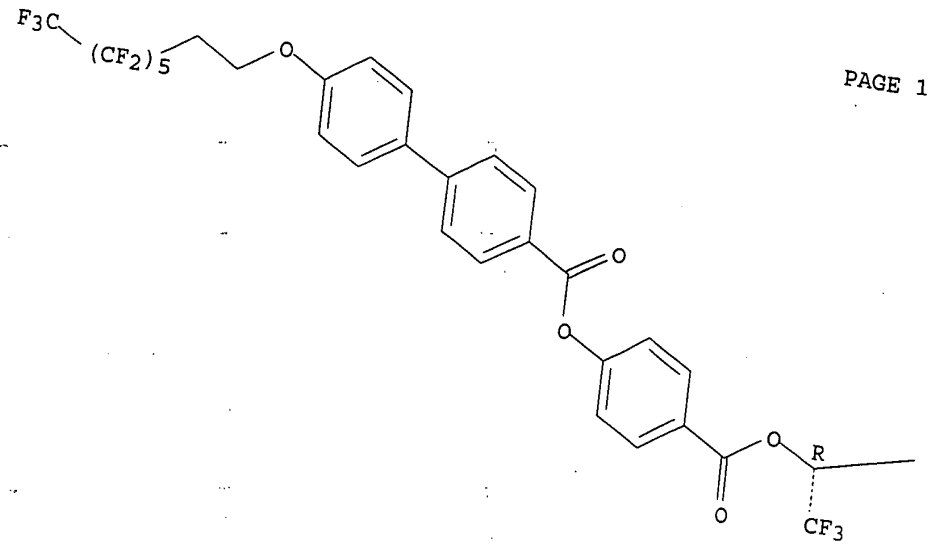
AN 1996:359696 CAPLUS
DN 125:45261
TI Antiferroelectric liquid-crystal composition
IN Okabe, Nobuhiro; Hashimoto, Shigeji; Isozaki, Tadaaki; Hagiwara, Takashi; Suzuki, Giichi; Kawamura, Ichiro
PA Showa Shell Sekiyu, Japan
SO Jpn. Kokai Tokkyo Koho, 80 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM G02F001-13
ICS C09K019-20; C09K019-30; C09K019-32; C09K019-34; C09K019-42; C09K019-44; C09K019-46
CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 75
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 08082778	A2	19960326	JP 1994-243320	19940912

AB The antiferroelec. liq.-crystal compn. contains .gtoreq.2 antiferroelec. liq.-crystal compds., or contains .gtoreq.1 antiferroelec. liq.-crystal compd. and .gtoreq.1 ferroelec. liq.-crystal compd. This compn. can be used in a display device for fast response.
ST antiferroelec liq crystal compn display
IT Liquid crystals
(antiferroelec. liq.-crystal compn.)
IT Optical imaging devices
(liq.-crystal, antiferroelec. liq.-crystal compn. for)
IT 177651-38-6 177651-39-7 177651-42-2 177651-43-3 177651-44-4
177651-46-6 177651-48-8 177651-49-9 177651-51-3 177651-53-5
177651-55-7 177651-57-9 177651-59-1 177651-61-5 177651-63-7
177651-65-9 177651-67-1 177651-69-3 177651-71-7 177651-73-9
177651-75-1 177651-77-3 177651-79-5 177651-81-9 177651-82-0
177651-84-2 **177651-86-4** 177651-88-6 177769-05-0
177929-85-0 177929-86-1 177929-87-2 177929-88-3 177929-89-4
177929-90-7 177929-91-8
RL: DEV (Device component use); USES (Uses)
(liq.-crystal compn.)
IT **177651-86-4**
RL: DEV (Device component use); USES (Uses)
(liq.-crystal compn.)
RN 177651-86-4 CAPLUS
CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-decyl-, 4-[[[1-(trifluoromethyl)heptyl]oxy]carbonyl]phenyl ester, (R)-, mixt. with (R)-3-fluoro-4-[[(1-methylheptyl)oxy]carbonyl]phenyl 4'-dodecyl[1,1'-biphenyl]-4-carboxylate, (R)-1-methylheptyl 4'-[(4-nonylbenzoyl)oxy][1,1'-biphenyl]-4-carboxylate, 4-[[[1-(trifluoromethyl)heptyl]oxy]carbonyl]phenyl 4'-[(3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl)oxy][1,1'-biphenyl]-4-carboxylate, (R)-4-[[[1-(trifluoromethyl)pentyl]oxy]carbonyl]phenyl 4'-decyl[1,1'-biphenyl]-4-carboxylate and (R)-4-[[[1-(trifluoromethyl)pentyl]oxy]carbonyl]phenyl 4'-(undecyloxy)[1,1'-biphenyl]-4-carboxylate (9CI) (CA INDEX NAME)

CM 1

CRN 177651-85-3
CMF C36 H30 F16 O5



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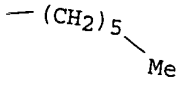
PAGE 1-B



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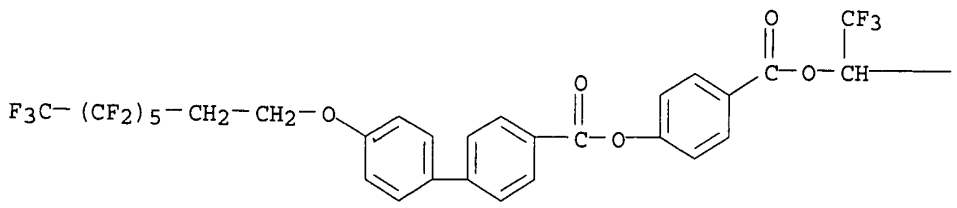


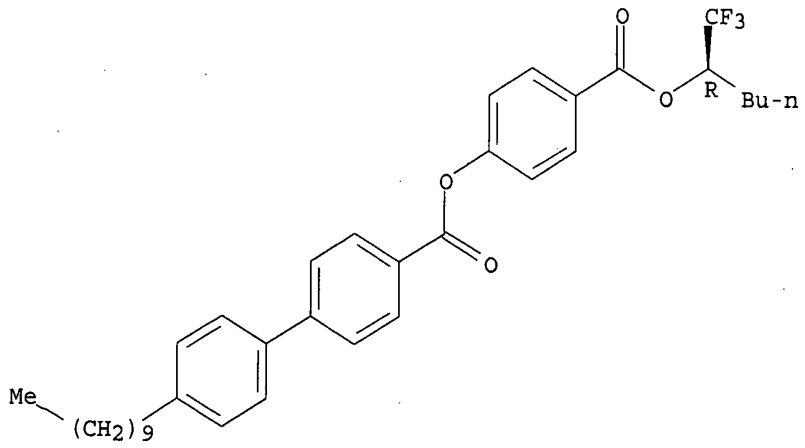
PAGE 1-B

— $(CH_2)_5$ — Me

CM 2

CRN 177651-41-1
CMF C36 H43 F3 O4

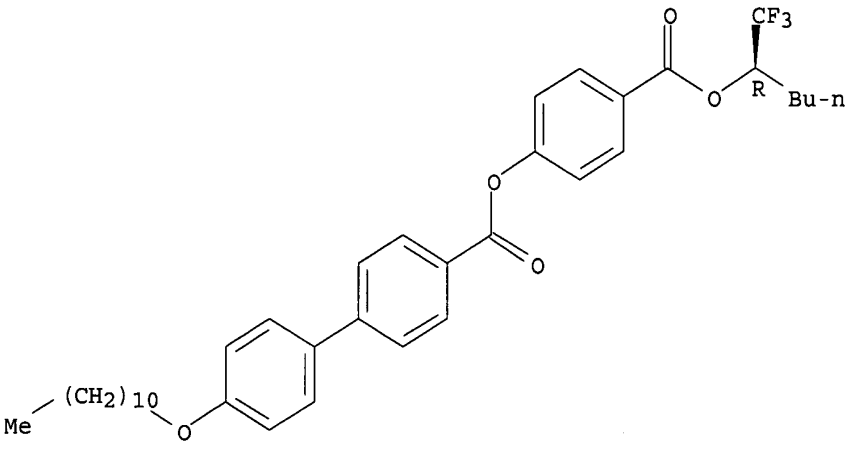
Absolute stereochemistry.



CM 3

CRN 177651-40-0
CMF C37 H45 F3 O5

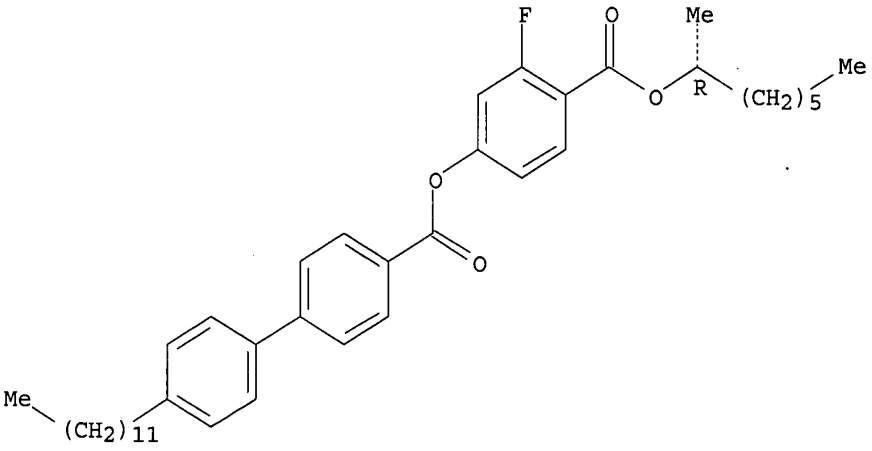
Absolute stereochemistry.



CM 4

CRN 173926-67-5
CMF C40 H53 F O4

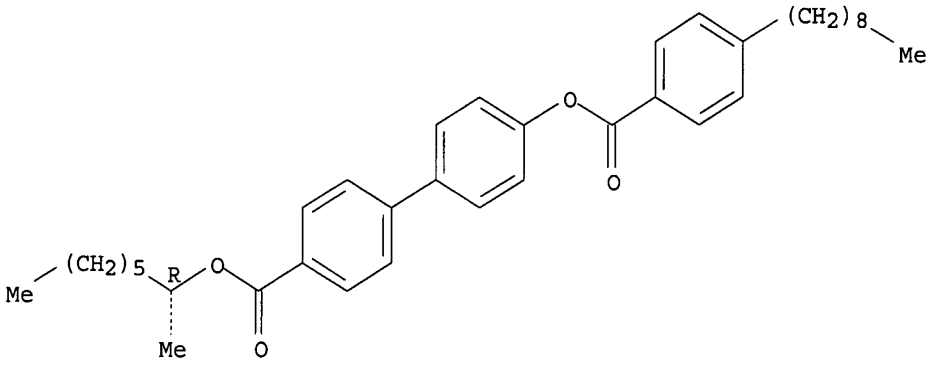
Absolute stereochemistry.



CM 5

CRN 170636-41-6
CMF C37 H48 O4

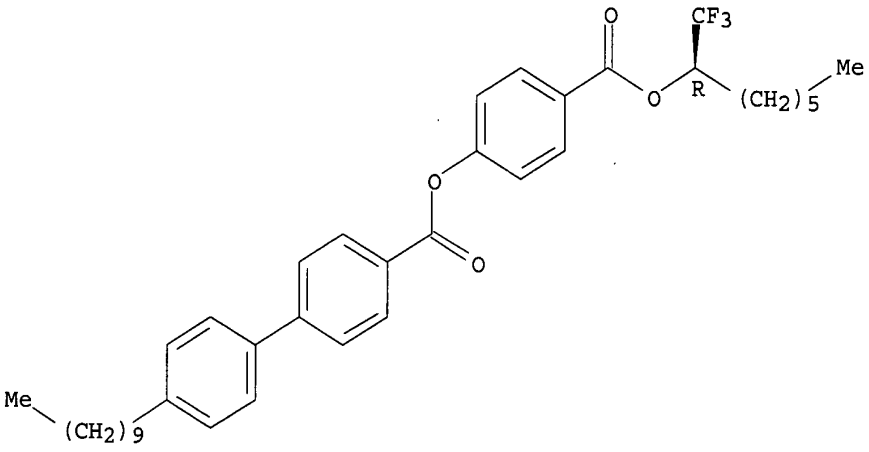
Absolute stereochemistry.



CM 6

CRN 170636-31-4
CMF C38 H47 F3 O4

Absolute stereochemistry.

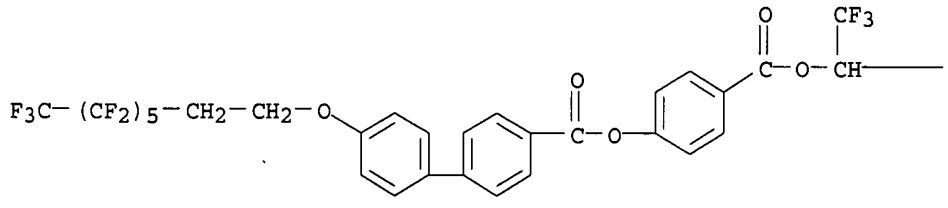


AN 1996:461960 CAPLUS
DN 125:128025
TI Liquid crystal-improving agent useful for preparing antiferroelectric liquid crystal compositions
IN Okabe, Nobuhiro; Hashimoto, Shigeji
PA Showa Shell Sekiyu, Japan
SO Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM C09K019-54
ICS G02F001-13; G02F001-137
CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 75
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 08113784	A2	19960507	JP 1994-277113	19941017

OS MARPAT 125:128025
AB The title agent has the general formula p-CmF2m+1CnH2nX(C6H4)rCO2C6H4CO2CHZCpF2p+1-p (I; m = 1-14; n = 0-13; X = a single bond, O, CO2, OCO; r = 1, 2; p = 2-12; Z = Me, CF3). The agent is useful for prepg. liq. crystal compns. with improved memory margin enough to be used as displays, esp. antiferroelec. liq. crystal compns. Thus, I (m = 6, n = 2, X = O, r = 2, Z = CF3, p = 6) was used as the agent.
ST liq crystal improving agent benzoate
IT Optical imaging devices
RL: DEV (Device component use); USES (Uses)
(liq.-crystal, benzoate deriv. liq. crystal characteristics improving agent)
IT **177651-85-3** 177651-87-5
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(benzoate deriv. liq. crystal characteristics improving agent)
IT **179128-72-4** 179128-73-5
RL: DEV (Device component use); USES (Uses)
(liq. crystal compn. contg. liq. crystal characteristics improving agent)
IT **177651-85-3**
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(benzoate deriv. liq. crystal characteristics improving agent)
RN 177651-85-3 CAPLUS
CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-[(3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl)oxy]-, 4-[[[1-(trifluoromethyl)heptyl]oxy]carbonyl]phenyl ester (9CI) (CA INDEX NAME)

PAGE 1-A

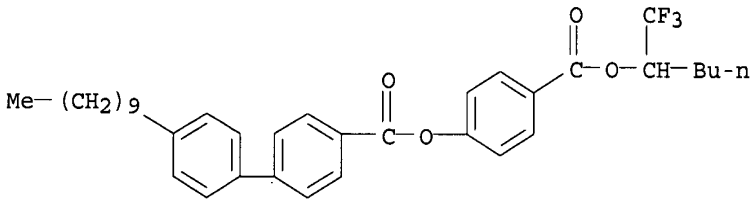


— $(CH_2)_5$ — Me

IT **179128-72-4**
RL: DEV (Device component use); USES (Uses)
(liq. crystal compn. contg. liq. crystal characteristics improving agent)
RN 179128-72-4 CAPLUS
CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-decyl-, 4-[[[1-(trifluoromethyl)heptyl]oxy]carbonyl]phenyl ester, mixt. with 3-fluoro-4-[[(1-methylheptyl)oxy]carbonyl]phenyl 4'-dodecyl[1,1'-biphenyl]-4-carboxylate, 1-methylheptyl 4'-[(4-nonylbenzoyl)oxy][1,1'-biphenyl]-4-carboxylate, 4-[[[1-(trifluoromethyl)heptyl]oxy]carbonyl]phenyl 4'-[(3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl)oxy][1,1'-biphenyl]-4-carboxylate, 4-[[[1-(trifluoromethyl)pentyl]oxy]carbonyl]phenyl 4'-decyl[1,1'-biphenyl]-4-carboxylate and 4-[[[1-(trifluoromethyl)pentyl]oxy]carbonyl]phenyl 4'-(undecyloxy)[1,1'-biphenyl]-4-carboxylate (9CI) (CA INDEX NAME)

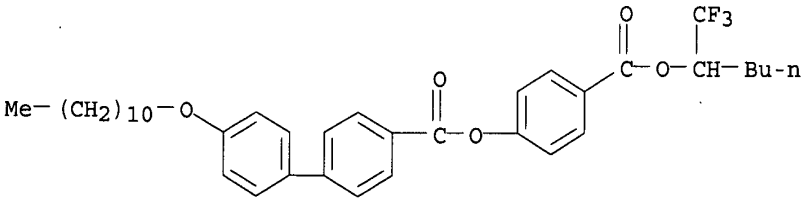
CM 1

CRN 179128-71-3
CMF C36 H43 F3 O4



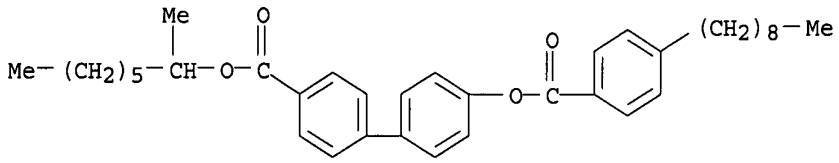
CM 2

CRN 179128-70-2
CMF C37 H45 F3 O5



CM 3

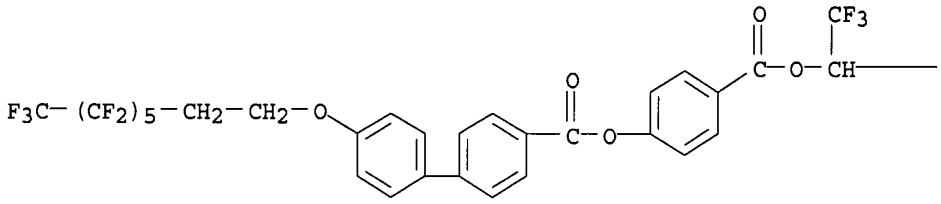
CRN 179128-69-9
CMF C37 H48 O4



CM 4

CRN 177651-85-3
CMF C36 H30 F16 O5

PAGE 1-A

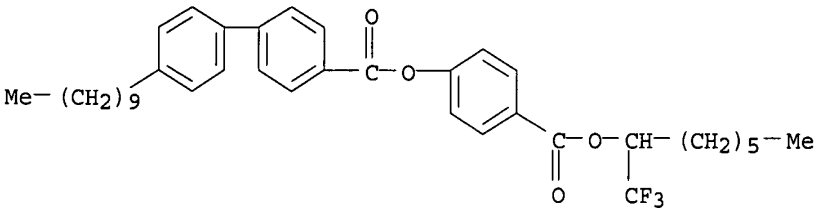


PAGE 1-B

— $(CH_2)_5$ — Me

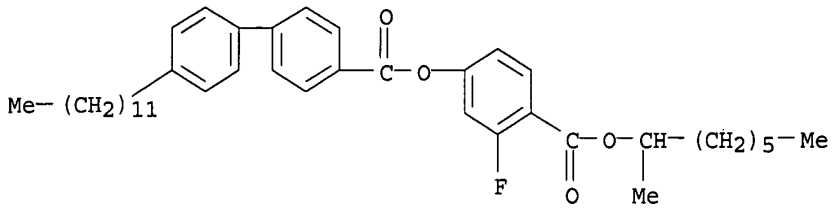
CM 5

CRN 131119-13-6
CMF C38 H47 F3 O4



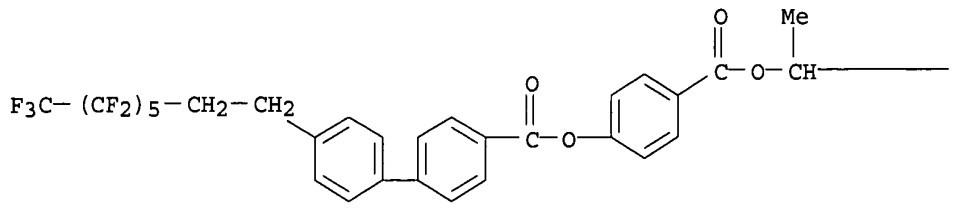
CM 6

CRN 108497-26-3
CMF C40 H53 F O4


Me– (CH2)11
O
C– O
F
C– O– CH– (CH2)5– Me
O
Me

AN 2000:417715 CAPLUS
DN 133:260141
TI Metastable states in antiferroelectric liquid crystals
AU Goc, F.; Kuczynski, Wojciech; Dabrowski, Roman S.
CS Institute of Molecular Physics, Polish Academy of Sciences, Poznan, Pol.
SO Proceedings of SPIE-The International Society for Optical Engineering (2000), 4147(Liquid Crystals), 75-78
CODEN: PSISDG; ISSN: 0277-786X
PB SPIE-The International Society for Optical Engineering
DT Journal
LA English
CC 76-8 (Electric Phenomena)
Section cross-reference(s): 75
AB Studies of a mixt. possessing induced antiferroelec. phase are described. This mixt. exhibited large thermal hysteresis of the transition between ferroelec. and antiferroelec. phases, which was demonstrated using dielec. and optical methods. Very slow kinetics (ranging from minutes to days) of the transition smectic C ARLR smectic CA was revealed. The coexistence of ferroelec. and antiferroelec. states was noticed. In the studied mixt. the V-shaped switching was obsd. The obsd. phenomena: hysteresis, slow kinetics and threshold-less switching are probably caused by competition of ferroelec. and antiferroelec. interactions acting between smectic layers.
ST antiferroelec liq crystal metastable state
IT Liquid crystals
Liquid crystals
(antiferroelec.; metastable states in antiferroelec. liq. crystals)
IT Antiferroelectric materials
Antiferroelectric materials
(liq.-crystal; metastable states in antiferroelec. liq. crystals)
IT Antiferroelectric materials
Dielectric constant
Ferroelectric transition
Metastable state (energy level)
(metastable states in antiferroelec. liq. crystals)
IT 64-17-5, Ethanol, properties
RL: FMU (Formation, unclassified); PRP (Properties); FORM (Formation, nonpreparative)
(metastable states in antiferroelec. liq. crystals)
IT **294660-41-6**
RL: PRP (Properties)
(metastable states in antiferroelec. liq. crystals)
RE.CNT 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Adamski, P; Liquid crystals 1989, P104
(2) de Vries, A; Mol Cryst Liq Cryst 1979, V49, P143 CAPLUS
(3) Fukuda, A; J Mater Chem 1994, V4, P997 CAPLUS
(4) Gauza, K; Mol Cryst Liq Cryst in press 1999
(5) Goc, W; Proc SPIE in press 1999
(6) Goc, W; Proc SPIE in press 1999
(7) Kuczynski, R; Proc SPIE in press 1999
(8) Rudquist, P; Mater Chem 1999, V9, P1257 CAPLUS
(9) Seomun, S; Mol Cryst Liq Cryst 1997, V303, P181 CAPLUS
(10) Takatoh, K; Application of (A) FLC Materials to AM-LCDs Conference summaries 1997
IT **294660-41-6**
RL: PRP (Properties)
(metastable states in antiferroelec. liq. crystals)
RN 294660-41-6 CAPLUS
CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-(3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl)-, 4-[[(1-methylheptyl)oxy]carbonyl]phenyl ester (9CI) (CA INDEX NAME)

PAGE 1-A

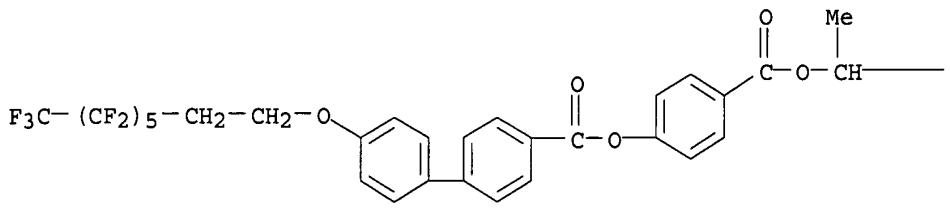


PAGE 1-B

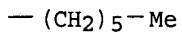
$-(CH_2)_5-Me$

AN 2000:417718 CAPLUS
DN 133:258546
TI Electro-optical properties of mixtures with the induced antiferroelectric phase
AU Kuczynski, Wojciech; Dabrowski, Roman S.; Gauza, S.; Goc, F.; Hoffmann, Jerzy; Czuprynski, Krzysztof L.; Drzewinski, J.; Kenig, K.
CS Institute of Molecular Physics, Polish Academy of Sciences, Poznan, Pol.
SO Proceedings of SPIE-The International Society for Optical Engineering (2000), 4147(Liquid Crystals), 79-83
CODEN: PSISDG; ISSN: 0277-786X
PB SPIE-The International Society for Optical Engineering
DT Journal
LA English
CC 73-2 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 75, 76
AB In some mixts. composed of ferroelec. components the induced antiferroelec. phase was obsd. Two mixts. of this kind, both exhibiting antiferroelec. order in a broad concn. range, were studied. The effect of elec. field of various strengths on optical properties of these mixts. was studied. In small elec. fields the modulation of light intensity occurred, which amplitude in ferroelec. phase was much higher than in the antiferroelec. one. In mixts. with induced antiferroelec. phase the authors detected a large hysteresis of the transition temp. between ferroelec. and antiferroelec. sates. In high elec. fields threshold-less switching was obsd. in the hysteresis range. The presence of the thermal hysteresis of the CA* - C* phase transition can be considered as a mark of the V-shaped switching. In bulk samples the C* phase is stable in, this temp. region, where the V- shaped switching was obsd. in thin samples.
ST electrooptical property antiferroelec phase smectic liq crystal
IT Electrooptical effect
Ferroelectric transition
(electro-optical properties of mixts. with induced antiferroelec. phase)
IT Ferroelectricity
(phase; electro-optical properties of mixts. with induced antiferroelec. phase)
IT Liquid crystals
(smectic; electro-optical properties of mixts. with induced antiferroelec. phase)
IT 109204-50-4 **215929-80-9** 294867-45-1 294867-57-5
RL: PRP (Properties)
(electro-optical properties of mixts. with induced antiferroelec. phase)
RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Chandani, A; Liq Cryst 1999, V26(2), P167 CAPLUS
(2) Gauza, S; Mol Cryst Liq Cryst, (in press) 1999
(3) Goc, F; Proc SPIE, (in press) 1999
(4) Lagerwall, S; Proc 7-th International Conf on Ferroelectric Liquid Crystals 1999, P100
IT **215929-80-9**
RL: PRP (Properties)
(electro-optical properties of mixts. with induced antiferroelec. phase)
RN 215929-80-9 CAPLUS
CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-[(3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl)oxy]-, 4-[[(1-methylheptyl)oxy]carbonyl]phenyl ester (9CI) (CA INDEX NAME)

PAGE 1-A



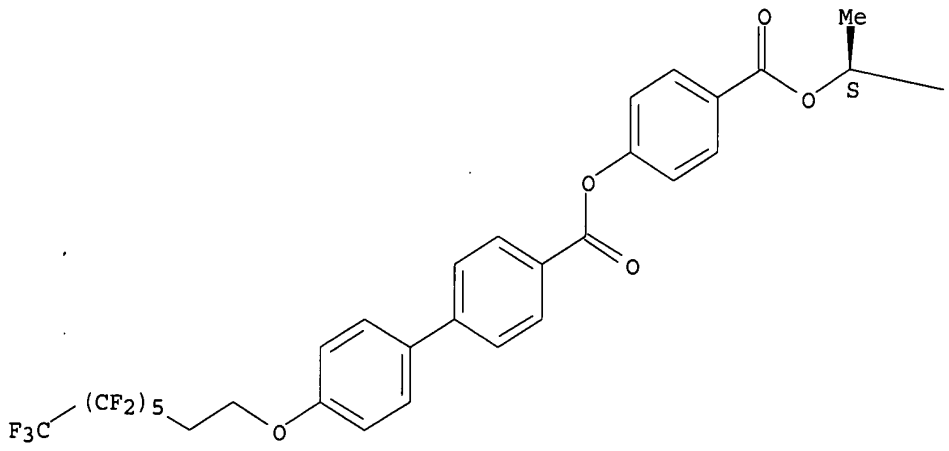
PAGE 1-B



AN 2000:417726 CAPLUS
DN 133:259633
TI Physical properties of components of mixture with induced SmCA* phase
AU Rutkowska, Jolanta; Perkowski, Pawel; Kedzierski, Jerzy; Raszewski, Zbigniew; Dabrowski, Roman S.; Gauza, S.; Czuprynski, Krzysztof L.; Miszczyk, Emilia
CS Inst. Appl. Phys., Military Univ. of Technology, Warszaw, Pol.
SO Proceedings of SPIE-The International Society for Optical Engineering (2000), 4147(Liquid Crystals), 101-108
CODEN: PSISDG; ISSN: 0277-786X
PB SPIE-The International Society for Optical Engineering
DT Journal
LA English
CC 75-11 (Crystallography and Liquid Crystals)
Section cross-reference(s): 25, 76
AB The aim of the authors' work was the studying of compds. not having SmCA phase, but in their mixts. for some concn. ranges induced smectic SmCA was obsd. Phys. macroscopic properties such as temp. dependencies of the spontaneous polarization PS, the tilt angle .theta. and the elec. permittivity .epsilon..perp. were measured for three compds. and their mixt. The studied mixt. exhibited antiferroelec. order in a broad concn. range. The large thermal hysteresis of the transition between ferroelec. and antiferroelec. phases for this mixt. was demonstrated using dielec. method. The authors have tried to explain the origin of the induced SmCA phase from the mol. structure of mols. of studied compds. obtained from theor. study by using semi-empirical quantum mech. calcns. method MINDO/3.
ST phys property component mixt smectic liq crystal
IT Antiferroelectricity
Dielectric constant
Ferroelectric transition
(ferroelec. and dielec. permittivity and thermal hysteresis of components of mixt. with induced SmCA* liq. crystal phase)
IT Liquid crystals
Liquid crystals
(ferroelec.; ferroelec. and dielec. permittivity and thermal hysteresis of components of mixt. with induced SmCA* liq. crystal phase)
IT Ferroelectric materials
Ferroelectric materials
(liq.-crystal; ferroelec. and dielec. permittivity and thermal hysteresis of components of mixt. with induced SmCA* liq. crystal phase)
IT **250130-33-7** 250130-34-8 294874-95-6
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(ferroelec. and dielec. permittivity and thermal hysteresis of components of mixt. with induced SmCA* liq. crystal phase)
RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Gauza, S; Mol Cryst Liq Cryst in press 1999
(2) Goc, F; Metastable states in antiferroelectric liquid crystals
(3) Hguyen, H; Liq Cryst 1999, V26, P1
(4) Kuczynski, W; Electrooptical properties of mixtures with the induced antiferroelectric phase
(5) Sarmento, S; Liq Cryst 1998, V25, P375 CAPLUS
IT **250130-33-7**
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(ferroelec. and dielec. permittivity and thermal hysteresis of components of mixt. with induced SmCA* liq. crystal phase)
RN 250130-33-7 CAPLUS
CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-[(3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl)oxy]-, 4-[[[(1S)-1-methylheptyl]oxy]carbonyl]phenyl ester (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



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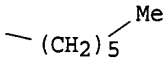
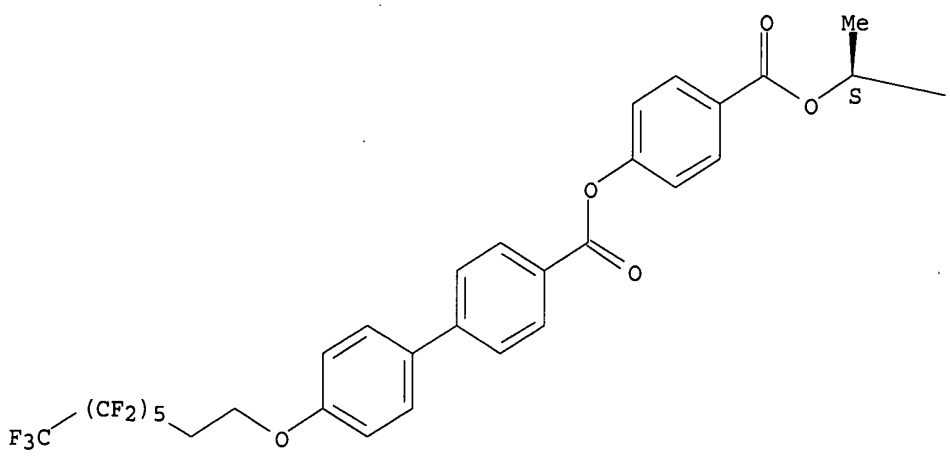


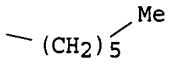
AN 2000:702350 CAPLUS
DN 133:357531
TI The effect of confinements on phase behavior of the mixture possessing smectic CA phase
AU Lapanik, V. A.; Muravski, A. A.; Yakovenko, S. Ye.; Drzewinski, W.; Czuprynski, K.; Dabrowski, R.
CS Institute of Applied Physics Problems, Minsk, 220064, Belarus
SO Ferroelectrics (2000), 244(1-4), 129-135
CODEN: FEROA8; ISSN: 0015-0193
PB Gordon & Breach Science Publishers
DT Journal
LA English
CC 75-11 (Crystallography and Liquid Crystals)
Section cross-reference(s): 74, 76
AB The authors present exptl. data on the phase behavior of a mixt. possessing SmCA* phase, which show that the balance between ferroelec. and antiferroelec. states is very mobile and can be shifted in favor of ferroelec. phase by weak external forces due to aligning surfaces.
ST confinement phase behavior smectic liq crystal mixt
IT Ferroelectric materials
(effect of confinements on phase behavior of mixt. possessing smectic CA phase)
IT Electrooptical effect
(of liq. crystal mixt. possessing smectic CA phase)
IT Liquid crystals
(smectic, ferroelec.; effect of confinements on phase behavior of mixt. possessing smectic CA phase)
IT Liquid crystals
(transitions; effect of confinements on phase behavior of mixt. possessing smectic CA phase)
IT 205435-21-8 **250130-33-7** 250130-34-8 294665-20-6
294665-22-8 305811-65-8
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(effect of confinements on phase behavior of mixt. possessing smectic CA phase)
RE.CNT 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Bahr, D; Phys Rev Lett 1993, V70, P1842
(2) Drzewinski, W; Mol Cryst Liq Cryst in press 1999
(3) Fukuda, A; J Mater Chem 1994, V4, P997 CAPLUS
(4) Fukuda, A; Mol Cryst Liq Cryst 1997, V303, P379 CAPLUS
(5) Inui, S; J Mater Sci 1996, V6, P671 CAPLUS
(6) Izosaki, T; Phys Rev B 1993, V48, P13439
(7) Lagerwall, S; Proc Int Disp Res Conf Eurodisplay 1999, P1140
(8) Miyasato, K; Jap J Appl Phys 1983, V22, PL661
(9) Pikin, S; Jap J Appl Phys 1981, V20, PL557 CAPLUS
IT **250130-33-7**
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(effect of confinements on phase behavior of mixt. possessing smectic CA phase)
RN 250130-33-7 CAPLUS
CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-[(3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl)oxy]-, 4-[[[(1S)-1-methylheptyl]oxy]carbonyl]phenyl ester (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



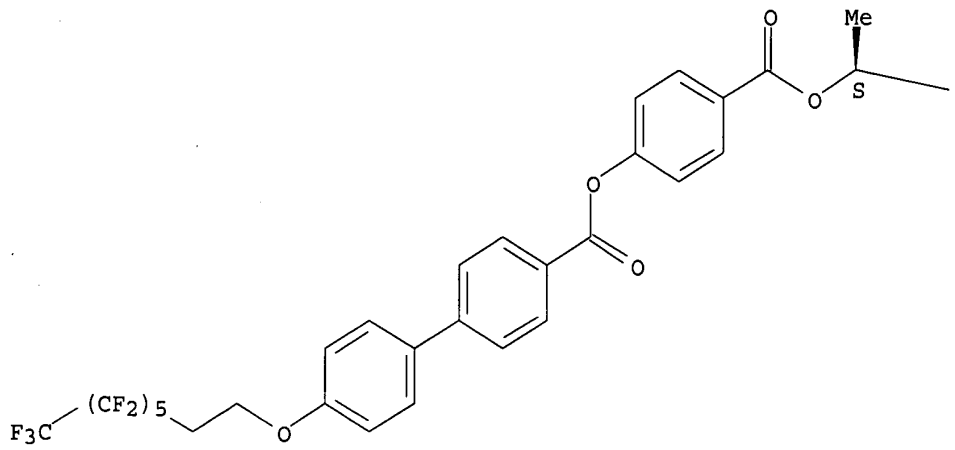
PAGE 1-B



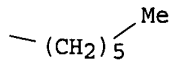
AN 2000:844340 CAPLUS
DN 134:93642
TI Antiferroelectric liquid crystals with fluorinated parts of terminal chains. III. Investigation of smectic layer spacing by x-ray scattering methods
AU Przedmojski, Jan; Dabrowski, Roman; Czuprynski, Krzysztof; Drzewinski, Witold
CS Inst. Fiz. Politech., Warsaw, 00-665, Pol.
SO Biuletyn Wojskowej Akademii Technicznej (2000), 49(8), 19-41
CODEN: BWATFP; ISSN: 1234-5865
PB Wojskowa Akademia Techniczna
DT Journal
LA Polish
CC 75-11 (Crystallography and Liquid Crystals)
Section cross-reference(s): 25
AB Changes of smectic layer spacing, the intensity of the diffraction peaks and its half width upon temp. were measured for recently prepd. benzoic acid deriv. esters having antiferroelec. smectic CA* phase. The presence of a fluorinated fragment in the terminal chain of mols. involves shortening of the SmCA* smectic layer spacing and increasing the tilt in the layers of SmCA* phase esp. for the compds. with short tails.
ST fluorinated antiferroelec liq crystal smectic layer spacing
IT Liquid crystals
(antiferroelec.; investigation of smectic layer spacing by x-ray scattering methods in esters contg. fluorinated terminal chains)
IT Antiferroelectric materials
(liq.-crystal; investigation of smectic layer spacing by x-ray scattering methods in esters contg. fluorinated terminal chains)
IT **250130-33-7** 250130-34-8 317807-25-3 317807-27-5
317807-29-7 317807-31-1 317807-33-3 317807-35-5 317807-37-7
317807-40-2 317807-43-5 317807-46-8 317807-49-1 317807-52-6
317807-55-9 317807-58-2 317807-61-7 317807-64-0 317807-67-3
317807-69-5 317807-72-0
RL: PRP (Properties)
(investigation of smectic layer spacing by x-ray scattering methods in esters contg. fluorinated terminal chains)
IT **250130-33-7**
RL: PRP (Properties)
(investigation of smectic layer spacing by x-ray scattering methods in esters contg. fluorinated terminal chains)
RN 250130-33-7 CAPLUS
CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-[(3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl)oxy]-, 4-[[[(1S)-1-methylheptyl]oxy]carbonyl]phenyl ester (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



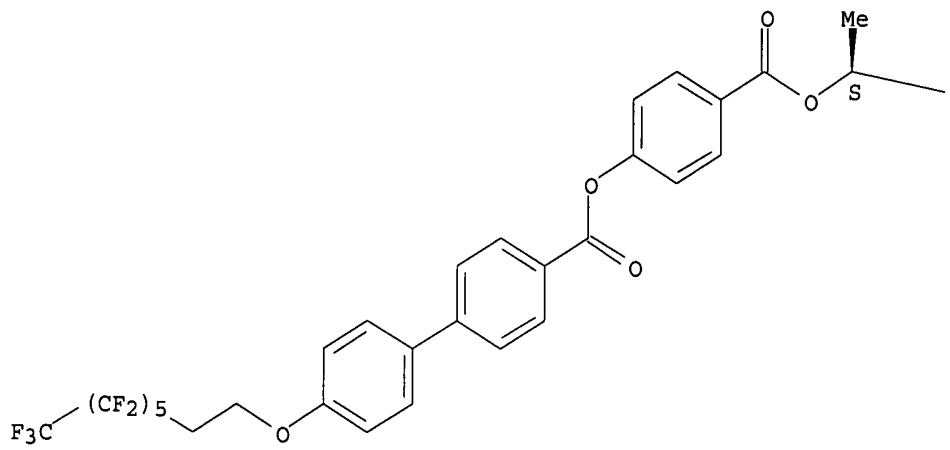
PAGE 1-B



AN 2001:186900 CAPLUS
DN 134:303319
TI Bicomponent systems with induced or enhanced antiferroelectric SmCA* phase
AU Gauza, S.; Czuprynski, K.; Dabrowski, R.; Kenig, K.; Kuczynski, W.; Goc, F.
CS Military University of Technology, Warsaw, 00-908, Pol.
SO Molecular Crystals and Liquid Crystals Science and Technology, Section A: Molecular Crystals and Liquid Crystals (2000), 351, 287-296
CODEN: MCLCE9; ISSN: 1058-725X
PB Gordon & Breach Science Publishers
DT Journal
LA English
CC 75-11 (Crystallography and Liquid Crystals)
Section cross-reference(s): 74, 76
AB A new method of the formulation of liq. cryst. antiferroelec. (CA*) materials from smectic C* and smectic A components is demonstrated. The phase diagrams of the induced CA* systems and the temp. dependence of their smectic layer spacings and switching behavior are shown.
ST antiferroelec smectic phase induced enhanced bicomponent system; switching antiferroelec ferroelec bicomponent system induced enhanced antiferroelec phase
IT Antiferroelectricity
Ferroelectric switching
(antiferroelec.-ferroelec. switching in bicomponent systems with induced or enhanced antiferroelec. SmCA* phase)
IT Liquid crystals
(chiral smectic CA, antiferroelec.; bicomponent systems with induced or enhanced)
IT Phase diagram
(of bicomponent systems with induced or enhanced antiferroelec. SmCA* phase)
IT 112901-67-4 205435-21-8 215929-83-2 215929-85-4 215929-87-6
215929-88-7 250130-29-1 **250130-33-7** 250130-34-8
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(bicomponent systems with induced or enhanced antiferroelec. SmCA* phase)
RE.CNT 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Brodzik, M; Liq Cryst 1995, V18, P61 CAPLUS
(2) Brodzik, M; Liq Cryst 1996, V20, P99 CAPLUS
(3) Chandanii, A; Jpn J Appl Phys 1989, V28, PL1261
(4) Dabrowski, R; Modern Topics in Liquid Crystals Induced Smectic and Nematic Phases and Reentrant Phenomena 1993, P125
(5) Drzewinski, W; Mol Cryst Liq Cryst in press 1999
(6) Fukuda, A; J Mat Chem 1994, V4, P997 CAPLUS
(7) Fukuda, A; Proc of Asia Display 1995, P61
(8) Goc, F; Proc SPIE in press 1999
(9) Gorecka, E; Phys Rev Lett 1998, V81, P2946 CAPLUS
(10) Matsumoto, T; Liq Cryst Today 1998, V8(4), P6
(11) Seomun, S; Jpn J Appl Phys 1997, V36, P3586 CAPLUS
IT **250130-33-7**
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(bicomponent systems with induced or enhanced antiferroelec. SmCA* phase)
RN 250130-33-7 CAPLUS
CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-[(3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl)oxy]-, 4-[[[(1S)-1-methylheptyl]oxy]carbonyl]phenyl ester (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



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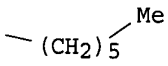


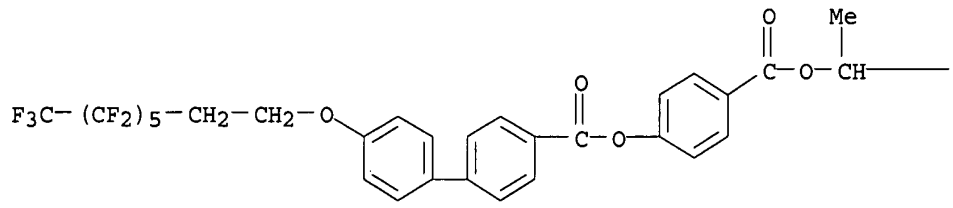
AN 2001:811609 CAPLUS
DN 136:93736
TI Bicomponent system with induced antiferroelectric SmCA* phase
AU Gauza, Sebastian; Czuprynski, Krzysztof; Dabrowski, Roman; Kuczynski, Wojciech; Pociecha, Damian
CS Military University of Technology, Warsaw, 00-908, Pol.
SO Molecular Crystals and Liquid Crystals Science and Technology, Section A: Molecular Crystals and Liquid Crystals (2001), 365, 189-198
CODEN: MCLCE9; ISSN: 1058-725X
PB Gordon & Breach Science Publishers
DT Journal
LA English
CC 75-11 (Crystallography and Liquid Crystals)
Section cross-reference(s): 73, 74, 76
AB In mixt. of two ferroelec. compds.: 4-(1-methyloctyloxycarbonyl)phenyl 4'-octyloxybiphenyl-4-carboxylate and 4-(1-methylheptyloxycarbonyl)phenyl 4-(perfluorohexyl-2-ethoxy)biphenyl-4-carboxylate an antiferroelec. SmCA* phase was induced. Dielec. and electrooptic properties were studied and discussed. V-shaped switching was obsd. in this mixt.
ST ferroelec component phase diagram antiferroelec induced phase
IT Liquid crystals
(antiferroelec.; ferroelec. component (methyloctyloxycarbonyl)phenyl octyloxybiphenylcarboxylate-(methylheptyloxycarbonyl)phenyl (perfluorohexylethoxy)biphenylcarboxylate system with induced antiferroelec. SmCA* phase)
IT Liquid crystals
(ferroelec.; ferroelec. component (methyloctyloxycarbonyl)phenyl octyloxybiphenylcarboxylate-(methylheptyloxycarbonyl)phenyl (perfluorohexylethoxy)biphenylcarboxylate system with induced antiferroelec. SmCA* phase)
IT Antiferroelectric materials
Ferroelectric materials
(liq.-crystal; ferroelec. component (methyloctyloxycarbonyl)phenyl octyloxybiphenylcarboxylate-(methylheptyloxycarbonyl)phenyl (perfluorohexylethoxy)biphenylcarboxylate system with induced antiferroelec. SmCA* phase)
IT Dielectric constant
Phase diagram
(of ferroelec. component (methyloctyloxycarbonyl)phenyl octyloxybiphenylcarboxylate-(methylheptyloxycarbonyl)phenyl (perfluorohexylethoxy)biphenylcarboxylate system with induced antiferroelec. SmCA* phase)
IT Electrooptical effect
(switching; of ferroelec. component (methyloctyloxycarbonyl)phenyl octyloxybiphenylcarboxylate-(methylheptyloxycarbonyl)phenyl (perfluorohexylethoxy)biphenylcarboxylate system with induced antiferroelec. SmCA* phase)
IT 114865-61-1, 4-(1-Methyloctyloxycarbonyl)phenyl 4'-octyloxybiphenyl-4-carboxylate **215929-80-9**, 4-(1-Methylheptyloxycarbonyl)phenyl 4-(perfluorohexyl-2-ethoxy)biphenyl-4-carboxylate
RL: PRP (Properties); PRP (Properties)
(ferroelec. component (methyloctyloxycarbonyl)phenyl octyloxybiphenylcarboxylate-(methylheptyloxycarbonyl)phenyl (perfluorohexylethoxy)biphenylcarboxylate system with induced antiferroelec. SmCA* phase)
RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Gauza, S; Mol Cryst Liq Cryst in press 2000
(2) Goc, F; Proc SPIE in press 1999
(3) Matsumoto, T; J Mat Chem 1999, V9, P2051
(4) Reikernad, T; Liq Cryst 1994, V17, P681
(5) Rudquist, P; SID, DIGEST 1999, P409
IT **215929-80-9**, 4-(1-Methylheptyloxycarbonyl)phenyl 4-(perfluorohexyl-2-ethoxy)biphenyl-4-carboxylate

RL: PRP (Properties); PRP (Properties)
(ferroelec. component (methyloctyloxycarbonyl)phenyl octyloxybiphenylcarboxylate-(methylheptyloxycarbonyl)phenyl (perfluorohexylethoxy)biphenylcarboxylate system with induced antiferroelec. SmCA* phase)

RN 215929-80-9 CAPLUS

CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-[(3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl)oxy]-, 4-[[(1-methylheptyl)oxy]carbonyl]phenyl ester (9CI) (CA INDEX NAME)

PAGE 1-A



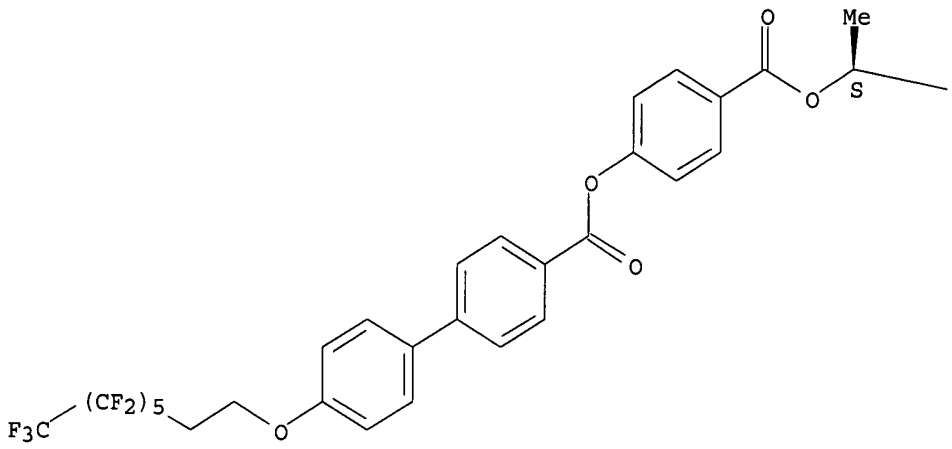
PAGE 1-B

— $(CH_2)_5$ — Me

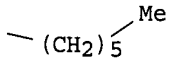
AN 2001:815458 CAPLUS
DN 136:78027
TI Properties of system with induced SmCA* phase
AU Rutkowska, J.; Kedzierski, J.; Raszewski, Z.; Perkowski, P.; Dabrowski, R.; Czuprynski, K.; Gauza, S.
CS Institute of Applied Physics, MUT, Warsaw, 00-908, Pol.
SO Molecular Crystals and Liquid Crystals Science and Technology, Section A: Molecular Crystals and Liquid Crystals (2001), 366, 617-628
CODEN: MCLCE9; ISSN: 1058-725X
PB Gordon & Breach Science Publishers
DT Journal
LA English
CC 76-9 (Electric Phenomena)
Section cross-reference(s): 75
AB Phys. macroscopic properties such as the spontaneous polarization Ps, the tilt angle .theta., dielec. permittivity .epsilon. as a function of temp. were measured for system with induced SmCA* composed simultaneously of three ring chiral esters with partially fluorinated terminal chain and nonfluorinated. Dielec. and spontaneous polarization measurements on heating and cooling runs show a thermal hysteresis for the phase transition between SmC* and SmCA* phases.
ST ferroelec liq crystal mixt dielec property
IT Liquid crystals
(ferroelec., smectic; properties of system with induced SmCA* phase)
IT Ferroelectric materials
(liq.-crystal, smectic; properties of system with induced SmCA* phase)
IT Dielectric constant
Dielectric relaxation
Hysteresis
Molecular orientation
Phase transition
Spontaneous dielectric polarization
(properties of system with induced SmCA* phase)
IT 112901-67-4 **250130-33-7** 250130-34-8
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process)
(properties of system with induced SmCA* phase)
RE.CNT 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Bourny, V; Liq Cryst 2000, V27, P559 CAPLUS
(2) Gauza, S; Mol Cryst Liq Cryst (be printed) 2000
(3) Goc, F; Proceedings of SPlE 2000, V4147, P75 CAPLUS
(4) Hguyen, H; Liq Cryst 1999, V26, P1
(5) Hiraoka, K; Jpn J Appl Phys 1990, V29, P103
(6) Kuczynski, W; Proceedings of SPIE 2000, V4147, P79 CAPLUS
(7) Rutkowska, J; Proceedings of SPIE 2000, V4147, P101 CAPLUS
(8) Sarmento, S; Liq Cryst 1999, V25, P375
IT **250130-33-7**
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process)
(properties of system with induced SmCA* phase)
RN 250130-33-7 CAPLUS
CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-[(3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl)oxy]-, 4-[[[(1S)-1-methylheptyl]oxy]carbonyl]phenyl ester (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



PAGE 1-B



AN 2001:815475 CAPLUS
DN 136:77991
TI Kinetics of the transition between ferroelectric and antiferroelectric states in liquid-crystalline mixtures
AU Kuczynski, W.; Goc, F.; Dabrowski, R.
CS Institute of Molecular Physics, Polish Academy of Sciences, Poznan, 60-179, Pol.
SO Molecular Crystals and Liquid Crystals Science and Technology, Section A: Molecular Crystals and Liquid Crystals (2001), 366, 771-784
CODEN: MCLCE9; ISSN: 1058-725X
PB Gordon & Breach Science Publishers
DT Journal
LA English
CC 76-8 (Electric Phenomena)
Section cross-reference(s): 75
AB Studies of a mixt. with induced antiferroelec. phase are described. This mixt. exhibits large thermal hysteresis of the transition between ferroelec. and antiferroelec. phases, which was demonstrated using dielec. and optical methods. The kinetics of the transition from the ferroelec. to the antiferroelec. state was extremely slow - its time const. ranged from few minutes to many hours, depending on temp. The rate of transition formally obeys the Avrami equation describing the kinetics of phase transitions from a supercooled state. However, the remarkably small exponent suggests, that the Avrami model is not suitable for description of the studied transition. The coexistence of ferroelec. and antiferroelec. states was noticed in a broad temp. range. In the same range the V-shaped switching was obsd. The obsd. phenomena: hysteresis, slow kinetics and threshold-less switching are probably caused by competition of ferroelec. and antiferroelec. interactions acting between smectic layers.
ST liq crystal mixt ferroelec antiferroelec transition
IT Dielectric constant
Dielectric hysteresis
Ferroelectric transition
Ferroelectricity
Liquid crystals
Phase transition
(kinetics of the transition between ferroelec. and antiferroelec. states in liq.-cryst. mixts.)
IT Antiferroelectricity
(transition; kinetics of the transition between ferroelec. and antiferroelec. states in liq.-cryst. mixts.)
IT **294660-41-6** 385416-74-0
RL: PRP (Properties)
(kinetics of the transition between ferroelec. and antiferroelec. states in liq.-cryst. mixts.)
RE.CNT 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Avrami, M; J Chem Phys 1940, V8, P212 CAPLUS
(2) de Vries, A; Mol Cryst Liq Cryst 1979, V49, P143 CAPLUS
(3) Fukuda, A; J Mater Chem 1994, V4, P997 CAPLUS
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(5) Goc, F; Proc SPIE (Int Soc Opt Eng) 1999, V4017, P171 CAPLUS
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(9) Rudquist, P; Mater Chem 1999, V9, P1257 CAPLUS
(10) Seomun, S; Mol Cryst Liq Cryst 1997, V303, P181 CAPLUS
(11) Takatoh, K; Proc 6-th Int Conf on Ferroelectric Liquid Crystals 1997, P18
IT **294660-41-6**
RL: PRP (Properties)
(kinetics of the transition between ferroelec. and antiferroelec. states in liq.-cryst. mixts.)
RN 294660-41-6 CAPLUS

CN [1,1'-Biphenyl]-4-carboxylic acid, 4'-(3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl)-, 4-[[(1-methylheptyl)oxy]carbonyl]phenyl ester (9CI) (CA INDEX NAME)

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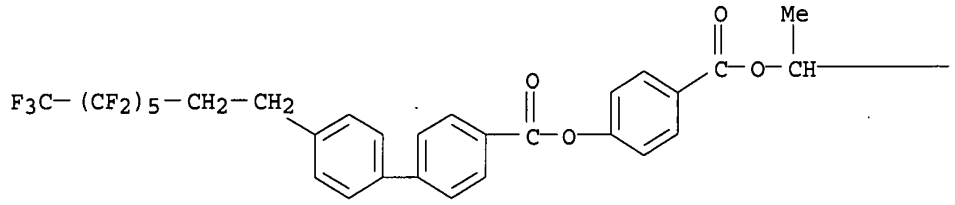

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—(CH2)5—Me

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L1: Entry 4 of 6 File: DWPI May 7, 1996

DERWENT-ACC-NO: 1996-272919
DERWENT-WEEK: 199628

TITLE: LC properties improver - gives improved memory margin when used in anti-ferroelectric LC compsns.

PRIORITY-DATA: 1994JP-0277113 (October 17, 1994)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
JP 08113784 A	May 7, 1996		007	C09K019/54

INT-CL (IPC): C09 K 19/54; G02 F 1/13; G02 F 1/137

ABSTRACTED-PUB-NO: JP08113784A
BASIC-ABSTRACT:

An improver for LC properties comprises a cpd. of formula (I); where m = 1-14; n = 0-13; X = single bond, O, COO or OCO; r = 1 or 2; p = 2-12; and Z = CH3 or CF3.

USE - (I) are useful for improving LC properties esp. of anti-ferroelectri c LC(s).

ADVANTAGE - (I) can give LC compsns. with a much improved memory margin capable of being sufficiently used in displays, esp. anti-ferroelec tric ones.

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L1: Entry 3 of 6 File: JPAB Mar 26, 1996

PUB-NO: JP408082778A
DOCUMENT-IDENTIFIER: JP 08082778 A
TITLE: ANTIFERROELECTRIC LIQUID CRYSTAL COMPOSITION

PUBN-DATE: March 26, 1996

INVENTOR-INFORMATION:
NAME COUNTRY
OKABE, NOBUHIRO
HASHIMOTO, SHIGEJI
ISOZAKI, TADAAKI
HAGIWARA, TAKASHI
SUZUKI, GIICHI
KAWAMURA, ICHIRO

INT-CL (IPC): G02 F 1/13; C09 K 19/20; C09 K 19/30; C09 K 19/32; C09 K 19/34; C09 K 19/42; C09 K 19/44; C09 K 19/46

ABSTRACT:

PURPOSE: To improve the threshold voltage, response time and gradual and lingering rate of an antiferroelectric liquid crystal compsn. by incorporating at least two kinds of antiferroelectric liquid crystal compds.

CONSTITUTION: The compsn. contains at least two kinds of antiferroelectric liquid crystal compds. (a), or at least one kind of antiferroelectric liquid crystal compd. (a) and at least one kind of ferroelectric liquid crystal compd. (b). Or, an improving agent (c) for liquid crystal characteristics is further added to the antiferroelectric liquid crystal compsn. The mixture of antiferroelectric liquid crystal compds. (a) is obtd., for example, by mixing CF3 antiferroelectric liquid crystal compds., CH3 antiferroelectric liquid crystal compds., or a CF3 antiferroelectric liquid crystal compd. and a CH3 antiferroelectric liquid crystal compd. The mixture is obtd. by mixing two or more, to the degree of about twenty, kinds of compds. Further, an improving agent for liquid crystal characteristics may be added to various kinds of antiferroelectric liquid crystal compds.

WEST

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L1: Entry 5 of 6 File: DWPI Mar 26, 1996

DERWENT-ACC-NO: 1996-218383
DERWENT-WEEK: 199622

TITLE: Antiferroelectric liquid crystal compsn. - having improved threshold voltage, response time and wide temp. operation range

PRIORITY-DATA: 1994JP-0243320 (September 12, 1994)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
JP 08082778 A	March 26, 1996		080	G02F001/13

INT-CL (IPC): C09 K 19/20; C09 K 19/30; C09 K 19/32; C09 K 19/34; C09 K 19/42; C09 K 19/44; C09 K 19/46; G02 F 1/13

ABSTRACTED-PUB-NO: JP08082778A
BASIC-ABSTRACT:

An antiferroelectric liq.-crystal compsn. contains (A) (a) at least two antiferroelectric liq.-crystal cpds. of formula A-skeleton structure-D (I), or (B) (a) one or more antiferroelectric liq.-crystal cpd(s). of formula (I), and (b) one or more ferroelectric liq.-crystal of formula A-basic skeleton-Q (III). In addition, an agent for improving liq.-crystal characteristics is present in (A) or (B).

In the formulae, A = R-, RO-, RCOO-, and RCO-, or R3-O-R4 and R5-CH=CH-R6; R = 2-20C alkyl gp.; when A = R-, part of H in the alkyl gp. may be substituted by halogen; R3 = 1-8C n- alkyl gp.; R4 = a 1-10C n-alkylene gp.; R5 = H, or a 1-5C straight-, or branched-chain alkyl gp.; R6 = a 2-14C straight-, or branched-chain alkyl gp.; D = a gp. selected from -COOCH*(E)-G, -COOCH*(E)-Ph, -(CH2)2COOCH*(E)-G, -(CH2)2COOCH*(E)-Ph, -COO(CH2)2-CH*(E)-G or -COO(CH2)2-CH*(E)-Ph (II); E = a gp. selected from -CF3, -C2F5, -C3F7, CClF2, CH3, and C2H5; asterisk = asymmetric carbon; G = a 2-20C straight-, or branched-cha in alkyl gp.; branched portion = a methyl gp.; a carbon-carbon double bond may be contained in part of the straight chain alkyl; Ph = a gp. selected from -C6H5, -p-C6H4-, -C6H11 or -C6H10-lower alkyl; skeleton structure = a gp. selected from e.g. -(p-C6H4)-COO-(p-C6H4)-, -(p-C6H4)-COO-(p-C6H4)-(p-C6H4)-, -(p-C6H4)-(p-C6H4)-COO-(p-C6H4)-, -(p-C6H4)-COO-(p-C6H4)-COO-(p-C6H4)-, -(p-C6H4)-(p-C6H4)-COO-(p-C6H4)-(p-C 6H4)- or -(p-C6H4)-COO-(p-C6H4)-COO-(p-C6H4)-COO-(p-C6H4)- (4).

The ferroelectric liq.-crystal cpd. is a cpd. of formula (III) (where A = as formula (I); Q = a gp. selected from formulae -COOCH*(CF3)R1, or -COO(CH2)nCOOCH*(CH3)R (46) (12 claimed) and -CH*(CH3)-(CH2)n-CH*(CH3)O R or -Cyclopropyl-R (47) (4 claimed); R1 = 1-20C alkyl gp.; n = 1-4; basic skeleton = -(p-C6H4)-COO-(p-C6H4)- or -(p-C6H4)-COO-(p-C6H4)-C OO-(m-C6H4)- (48) (8 claimed) and -(p-C6H4)-(p-C6H4)-COO-(p-naphthyl)- or -(p-C6H4)-(p-C6H4)-OCH2-(p-C6H4)- (49) (7 claimed).

The agent for improving the liq.-crystal characteristics comprises a non-chiral cpd. selected from cpds. of formula (IIIA) formula (IV), (V), and R10COOR11(VI). In the formulae, n = 1-3; X and Y - -, O, COO, or OCO; h = H, or F; M = H, yet branched portion may be F1 p = 2-12 (including branched chain); m = 1 or 2. n = 4-14; X, and Y = -, O, COO, or OCO; m = 4-14. n = 4-14; X and Y = -, O, COO, or OCO; m = 0-13; p = 1-14; R10 and R11 = 1-20C alkyl gps. opt. halogen substd..

USE - The antiferroelectric liq.-crystal compsn. is used for liq.-crystal display

device.

ADVANTAGE - The antiferroelectric liq.-crystal compsn. had dramatically improved threshold value voltage, response time. The use of the agent for improving the liq.-crystal characteristics further improves the threshold value voltage time. The antiferroelectric liq.-crystal compsn. has wide temp. operation range for liq.-crystal display device.